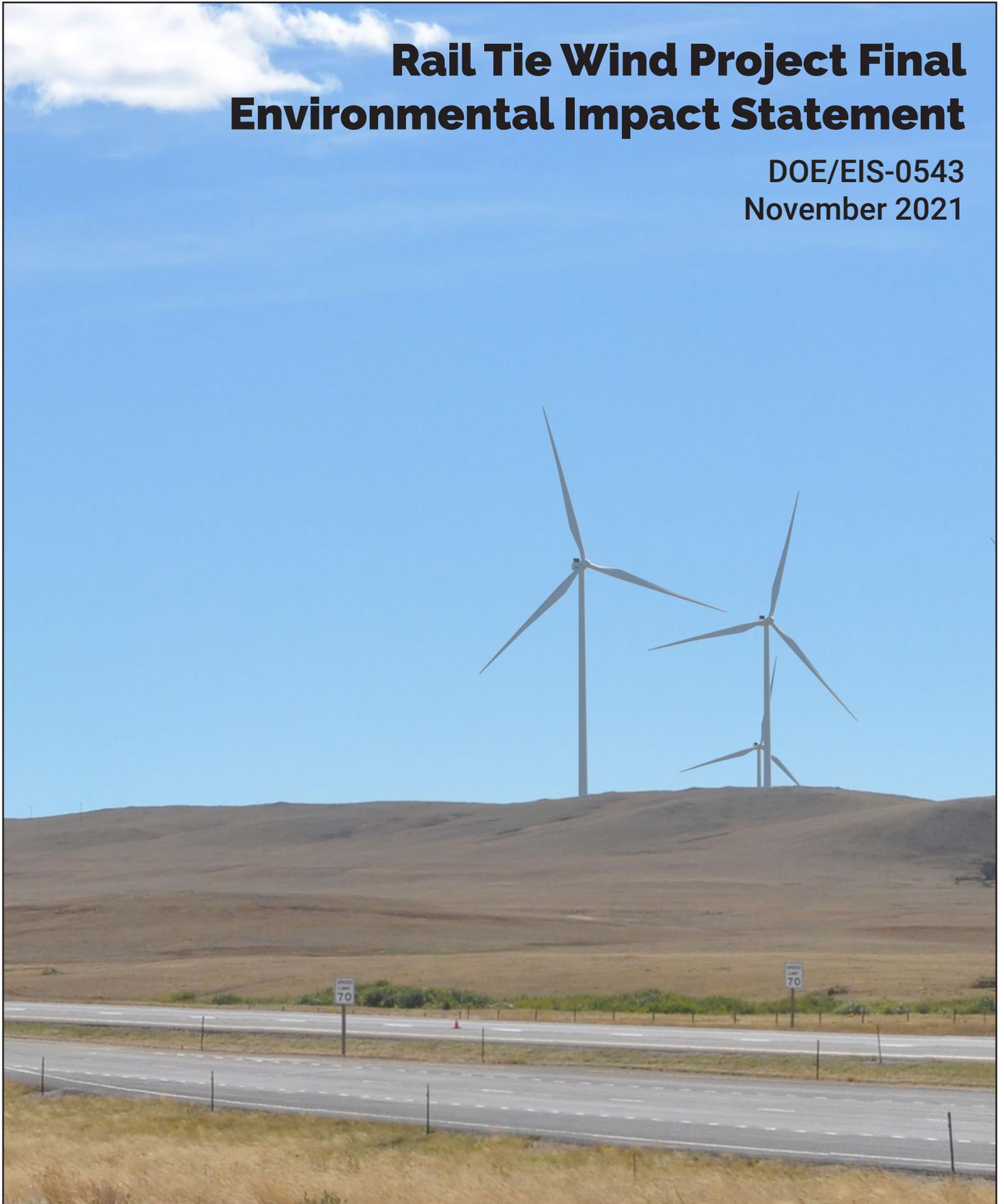


Rail Tie Wind Project Final Environmental Impact Statement

DOE/EIS-0543
November 2021



**Western Area
Power Administration**

Cover photograph adapted from the *Visual Impact Assessment, Rail Tie Wind Project, Albany County Wyoming* (Tetra Tech 2020a). This photograph depicts the Rail Tie Wind Project Area as viewed toward the southeast from Tie Siding, Wyoming. Vestas V162-5.6 MW wind turbines have been simulated on the landscape as proposed by ConnectGen Albany County LLC. These turbines have a hub height of 410 feet, a blade diameter of 531 feet, and a total turbine height of 675 feet. The nearest turbine pictured is at a distance of approximately 1.25 miles.

Final Environmental Impact Statement

Rail Tie Wind Project

DOE/EIS-0543

U.S. Department of Energy—Western Area Power Administration

ConnectGen Albany County LLC

November 2021



**Western Area
Power Administration**

MISSION STATEMENT

Safely provide reliable, cost-based hydropower and transmission to our customers and the communities we serve.

RAIL TIE WIND PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT

Western Area Power Administration
12155 W. Alameda Parkway
Lakewood, Colorado 80228
DOE/EIS-0543
November 2021

Lead Agency: Western Area Power Administration

Type of Action: () Administrative Draft () Draft (X) Final

Cooperating Agencies:

U.S. Environmental Protection Agency Region 8	Wyoming State Historic Preservation Office
Wyoming Office of Governor Mark Gordon	Wyoming State Parks and Cultural Resources
Wyoming Department of Environmental Quality	Wyoming Office of State Lands and Investments
Wyoming Game and Fish Department	

Authorized Officers Responsible for the Environmental Impact Statement:

Contact, Title: Tracey LeBeau, Administrator and Chief
Executive Officer
WAPA Headquarters
12155 W. Alameda Parkway
Lakewood, Colorado 80228
720-962-7077

For Further Information, Contact: Mark Wieringa, Document Manager
WAPA Headquarters
12155 W. Alameda Parkway
Lakewood, Colorado 80228
720-962-7448
wieringa@wapa.gov

Abstract:

This final environmental impact statement (EIS) analyzes the impacts related to the development of the Rail Tie Wind Project (Project) proposed by ConnectGen Albany County LLC (ConnectGen). The Project is a proposed utility-scale wind energy facility under development by ConnectGen. The Project would be located in southeastern Albany County, Wyoming, and the Project Area would encompass approximately 26,000 acres of rangeland on private and Wyoming State Lands located near Tie Siding, Wyoming. The Project would have a generating capacity of up to 504 megawatts of renewable wind energy. ConnectGen has applied to interconnect the Project to the existing Ault-Craig 345-kilovolt (kV) transmission line that intersects the Project Area, under the Western Area Power Administration's (WAPA) Large Generator Interconnection Process. The Ault-Craig 345-kV transmission line is jointly owned by WAPA, Tri-State Generation and Transmission Association, and Platte River Power Authority. In accordance with its Open Access Transmission Service Tariff (Tariff), WAPA's consideration to grant an interconnection request is a major Federal action subject to environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and the Department of Energy (DOE) and Council on Environmental Quality NEPA implementing regulations. Under these regulations, ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system. This EIS describes the physical, biological, cultural, and socioeconomic resources in and around the Project. The EIS considers the impacts of WAPA's Federal action and ConnectGen's proposed Project, as well as the No Action Alternative.

This page intentionally left blank.

EXECUTIVE SUMMARY

ES 1 Introduction

The Rail Tie Wind Project (Project) is a proposed utility-scale wind energy facility under development by ConnectGen Albany County LLC (ConnectGen). The Project would be located in southeastern Albany County, Wyoming, and the Project Area would encompass approximately 26,000 acres of rangeland on private and Wyoming State Lands located near Tie Siding, Wyoming. No federally managed lands are located within the Project Area (figure ES-1). The Project would have a generating capacity of up to 504 megawatts (MW) of renewable wind energy.

ConnectGen has applied to interconnect the Project to the existing Ault-Craig 345-kilovolt (kV) transmission line that intersects the Project Area, under the Western Area Power Administration's (WAPA) Large Generator Interconnection Process (LGIP). The Ault-Craig 345-kV transmission line is jointly owned by WAPA, Tri-State Generation and Transmission Association, and Platte River Power Authority. In accordance with its Open Access Transmission Service Tariff (Tariff), WAPA's consideration to grant an interconnection request is a Federal action subject to environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and the Department of Energy (DOE) and Council on Environmental Quality NEPA implementing regulations. Under these regulations, ConnectGen's proposed Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system.

ES 2 Western Area Power Administration's Purpose, Need, and Decision

ConnectGen has requested to interconnect its proposed Project to the Ault-Craig 345-kV transmission line via a new interconnection switchyard in the Project Area. WAPA's purpose and need is to consider and respond to the request for an interconnection agreement in accordance with its Tariff and the Federal Power Act, 16 United States Code 791 et seq., as amended.

Under the Tariff, WAPA offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff also contains terms for processing requests for the interconnection of generation facilities to WAPA's transmission system. The Tariff substantially conforms to Federal Energy Regulatory Commission (FERC) final orders that provide for nondiscriminatory transmission system access. WAPA originally filed its Tariff with FERC on December 31, 1997, pursuant to FERC Order Nos. 888 and 889. Responding to FERC Order No. 2003, WAPA submitted revisions regarding certain Tariff terms and included the LGIP and a Large Generator Interconnection Agreement in January 2005. In response to FERC Order No. 2006, WAPA submitted additional term revisions and incorporated Small Generator Interconnection Procedures and a Small Generator Interconnection Agreement in March 2007. In September 2009, WAPA submitted yet another set of revisions to address FERC Order No. 890 requirements along with revisions to existing terms.

In reviewing interconnection requests and making its decision, WAPA must ensure that existing reliability and service are not degraded. WAPA's LGIP provides for transmission and system studies to ensure that system reliability and service to existing power customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate interconnection of the proposed Project and address whether the upgrades/additions are within the Project scope.

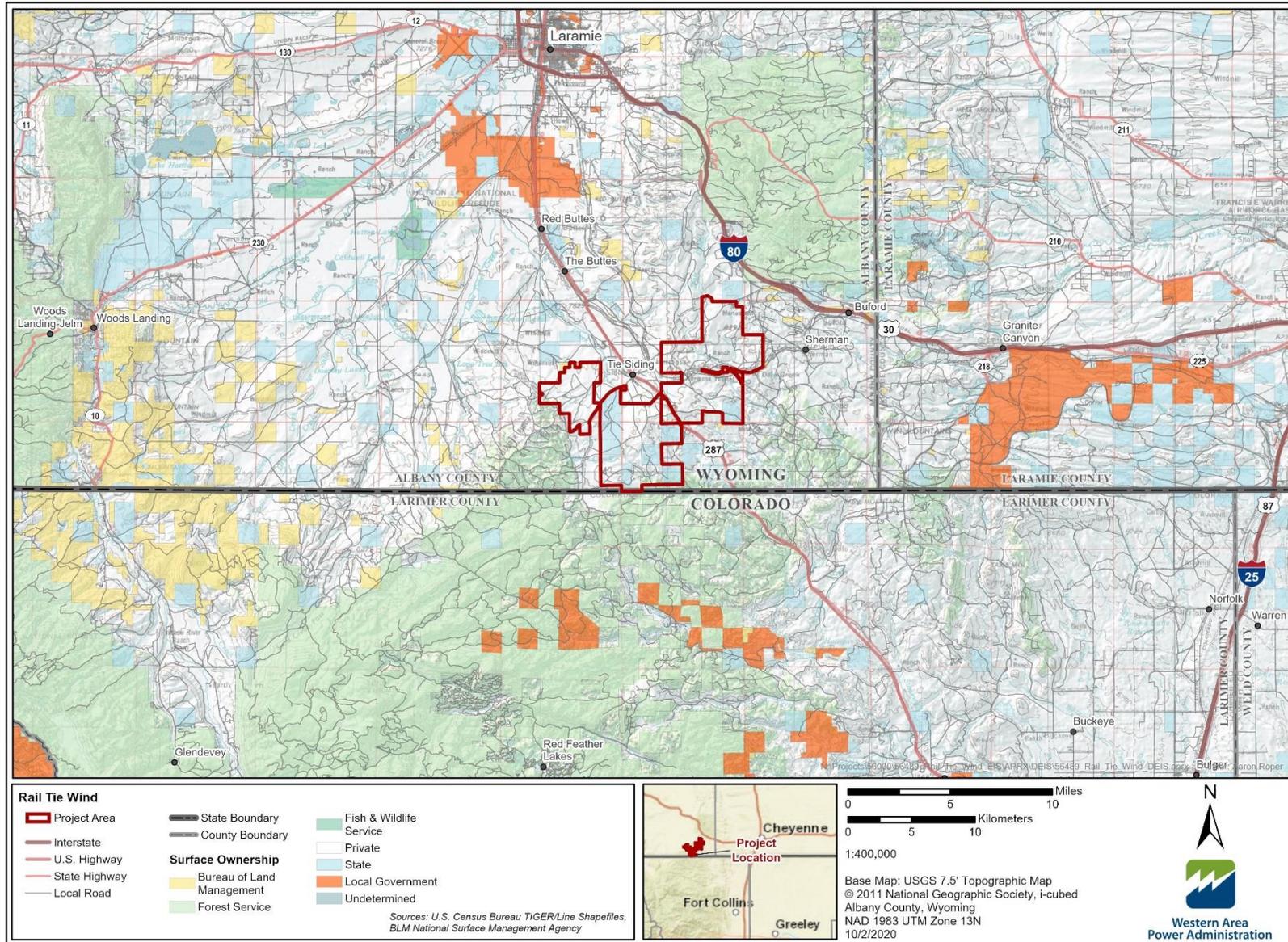


Figure ES-1. Project location.

ES 3 ConnectGen's Goals and Objectives

ConnectGen's goal is to obtain an interconnection agreement with WAPA in order to transmit the renewable energy generated by the Project to potential customers using WAPA's transmission system.

ConnectGen's objectives are to:

- (1) Develop, construct, and operate a commercial wind energy generation facility capable of generating up to 504 MW of wind energy.
- (2) Interconnect to WAPA's transmission system via a direct interconnection to the Ault-Craig 345-kV transmission line.
- (3) Locate the Project in close proximity to an existing transmission line in order to reduce impacts and costs associated with building new transmission.
- (4) Serve increasing market demand within the Western Interconnection, driven by state renewable portfolio standard (RPS) mandates and clean energy goals, the low cost of wind energy generation, and planned retirements of thermal generation facilities.
- (5) Create temporary and permanent jobs in Albany County and contribute to Albany County's tax base.
- (6) Support landowners through diversification of revenue streams.
- (7) Offset approximately 900,000 metric tons of carbon dioxide emissions annually compared to thermal U.S. electric generation.
- (8) Provide emissions-free energy for the equivalent of approximately 180,000 households.

Thirty-seven states now have an RPS, or goal, for electricity produced by renewable energy sources, such as wind, solar, biomass, and geothermal sources. In addition to the demand driven by state RPS mandates and clean energy goals, there is increased demand from western load-serving entities because of the low cost of wind energy and planned retirements of thermal generation plants. The cost of generating electricity from wind continues to trend downward (DOE 2018), approaching costs competitive with existing conventional generation, even when considering unsubsidized prices (Lazard 2019). Many western utilities have announced ambitious plans to add large amounts of renewable energy to their portfolios in the coming years. These drivers of demand create a dynamic marketplace in which wind energy can be generated in one location and transmitted to another. Energy generation and transmission locations are influenced by market conditions and power purchase agreements between wind energy developers and the utility or large-scale consumer purchasing the electricity. The Project is complementary to ConnectGen's renewable energy generation strategy and would contribute to the generation resource pool needed to meet future load and state RPS requirements.

ES 4 Western Area Power Administration's Proposed Federal Action

The proposed Federal action being considered by WAPA in this environmental impact statement (EIS) is the interconnection request submitted by ConnectGen for the Project. FERC mandates require that interconnection requests be accommodated so long as capacity is available, operation of the power system would not be negatively affected, the applicant funds any necessary system upgrades, and existing power customers would not be impacted. WAPA can deny an interconnection request if any of these conditions are not met. If ConnectGen's interconnection request is approved, WAPA would construct, own, operate, and maintain an interconnection switchyard in the Project Area. These facilities are described below.

ES 4.1 Interconnection Switchyard

A 345-kV interconnection switchyard would be required to connect the Project to the existing Ault-Craig 345-kV transmission line. WAPA would coordinate with ConnectGen on the final design and construction of the interconnection switchyard based on the findings of WAPA's facilities study. A typical 345-kV interconnection switchyard encompasses a fenced area of up to 8 acres. A switchyard typically includes breakers and switches that protect and control the flow of power onto the power system, in addition to a small control building.

WAPA would require ConnectGen to fund and construct the switchyard as well as fund completion of any other required system upgrades. Upon completion of the switchyard, WAPA would own, operate, and maintain the switchyard as part of WAPA's transmission system.

ES 4.2 Transmission System Upgrades

Additional upgrades to WAPA's transmission system could be required, such as additional equipment installation at connecting substations. WAPA would require ConnectGen to fund completion of any other required system upgrades. These additional upgrades would be installed by WAPA. System upgrades would occur within existing fenced substation yards without the need for expansion or new disturbance.

The "System Impact Study 2019-G2" was completed in 2020 (WAPA 2020a) and concluded that the full 504-MW Project can be interconnected without any further system upgrades. WAPA is currently completing a Facility Study to confirm what specific electrical equipment would be required at the interconnection switchyard.

ES 4.3 No Action Alternative

Under the No Action Alternative, WAPA would not approve the interconnection request, and ConnectGen's Project would not be allowed to connect to WAPA's transmission system. While this would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system, for the purposes of analysis, this EIS assumes that in that case, the Project would not be built.

ES 4.4 Proposed Federal Action Alternative Considerations

WAPA's Federal action to consider the interconnection request is limited to two distinct outcomes: either approve or deny the interconnection request. Based on this limitation, no additional alternatives beyond the proposed Federal action and the No Action Alternative have been included in this EIS.

The proposed Federal action to consider ConnectGen's interconnection request is distinct from ConnectGen's proposal to construct a wind energy project. WAPA's proposed Federal action is limited to consideration of the interconnection request submitted by ConnectGen and the required system upgrades. Although the Project is the impetus for the requested interconnection request and WAPA's need for Federal action, the Project is a connected action to WAPA's Federal action. WAPA is analyzing the potential environmental effects of ConnectGen's Project in this EIS to fully disclose the activities and associated impacts and to inform WAPA's Federal action (i.e., the decision on the interconnection request). ConnectGen's decision to construct the Project, however, could proceed regardless of WAPA's decision. In that situation, ConnectGen could seek other transmission opportunities. This scenario is not analyzed in this EIS because, in that case, there would be no Federal nexus and no WAPA proposed Federal action to address under NEPA.

As is typical with development of energy generation projects, final selection of turbine models has not been made at this time in the planning and permitting process. ConnectGen is considering a range of turbine models for the Project and has provided representative layouts to its Project to illustrate the potential differences that might occur depending on the wind turbine generator model selected. ConnectGen will review a range of factors in selecting a turbine, such as anticipated technology advancements, costs, and availability from manufacturers for delivery if the interconnection request is approved. Final selection of the turbine model (and subsequent layout) would occur after the NEPA process is concluded and prior to construction.

The representative layouts do not constitute alternatives to WAPA's proposed Federal action. The EIS analysis process will consider the representative layouts by comparing the impact indicators of each layout, or by disclosing the layout with the highest level of impact. Opportunities to lessen those impacts, regardless of layout, will be identified through design features or practices and will give WAPA the required impact disclosure to make an informed and defensible decision on the interconnection request.

WAPA's agency-preferred alternative is the proposed Federal action to approve the interconnection request, thus fulfilling the Tariff.

ES 5 ConnectGen's Rail Tie Wind Project

ConnectGen's Project is considered a connected action to the Federal action to consider the interconnection request. If the interconnection request is approved by WAPA, then ConnectGen would build the Project as described in Chapter 2. The Project was approved by the Albany County Board of County Commissioners on July 16, 2021 (Albany County Planning Office 2021), and was approved by the Wyoming Industrial Siting Council on July 21, 2021. Each of these permits contains conditions of approval as noted in section 2.2.6, "Environmental Protection Measures." The analysis contained herein considers both WAPA's proposed Federal action and ConnectGen's Project when disclosing potential impacts. Potential WAPA resource impacts would be limited to the approximately 8-acre interconnection switchyard and its associated interconnection facilities.

ES 6 Affected Environment and Environmental Consequences

Following is a summary of information found in Chapter 3, which contains the analysis of potential impacts that would occur from the Project.

ES 6.1 Aesthetics and Visual Resources

The term "aesthetic and visual resources" (visual resources) refers to the composite of basic terrain, geologic and hydrologic features, vegetative patterns, and human-built features that influence the visual appeal of a landscape. The analysis area for visual resources is defined as the area of visibility up to 30 miles from the Project Area.

To investigate the potential visual impacts of the Project, a viewshed analysis was conducted to determine the extent to which the Project (wind turbines) would potentially be visible within the 30-mile analysis area. Within the 30-mile analysis area, three distance zones were established: foreground (0–5 miles), middle ground (5–15 miles), and background (15–30 miles). The analysis identified where Project components would be visible if there were no vegetation or structures to screen a viewer from the components. This analysis, based on "bare earth" visibility, reflected the conservative scenario, or highest expected level of visibility, in determining sensitive viewing locations and potential visual impacts.

There would be approximately 138,930 acres of change to Class A, B, and C areas (defined in section 3.2, "Aesthetics and Visual Resources") (approximately 6 percent of the analysis area) within the Project Area and the foreground zone of the analysis area. There would be 215,920 acres of change to Class A, B, and

C areas (approximately 9 percent of the analysis area) within the Project Area and the middle ground zone of the analysis area.

Although the Project components would be visible in the background area of the Project within the analysis area, the inherent scenic quality for areas within the background (approximately 439,172 acres or 18 percent of the analysis area) would have weak to no degrees of visual change (i.e., contrast perceived by viewers and magnitude of change to landscape character/scenic quality) because of distance and the ability to perceive the Project in relation to other existing visual elements within the landscape.

The improvements to existing access roads and the construction of new access roads within the Project Area could create opportunities for people to access previously inaccessible areas. This could result in trampling vegetation and additional resource damage (such as increased erosion), which could affect scenic quality in these areas. To prevent these potential impacts, new access roads within the Project Area would not be open for public uses. Depending on the viewer's location, there would be weak to strong degrees of visual change to the existing scenic quality and landscape character resulting from operations and maintenance (O&M) activities.

The degrees of visual change for maximum turbine height would be moderate to strong from 76 percent of identified key observation points (KOPs) as compared to 54 percent associated with the minimum turbine height. The landscape would appear substantially to severely altered; Project components would introduce form, line, color, texture, or scale uncommon in the landscape and would be visually prominent to dominant in the landscape; Project components would attract or demand attention; and Project components would begin to dominate or dominate the visual setting. The degree of visual change for travelers, tourists, and residents would range from none to strong, depending on distance from the Project and the observation point. The reduced activation time, as well as the short-duration, synchronized flashing of the Aircraft Detection Lighting System, would have substantially fewer significant visual effects (duration) at night than the standard continuous, or synchronized flashing, medium-intensity red strobe Federal Aviation Administration warning system, which would reduce the potential degrees of visual change of nighttime lighting depending on viewer location and proximity. One location was identified within the analysis area where there would be a maximum predicted shadow flicker of 25 hours and 6 minutes per year. This represents approximately 0.6 percent of the potential available daylight hours and is not considered significant. Based on the overall analysis of these issues, the introduction of wind turbines and associated infrastructure in the characteristic landscape would result in significant impacts. Impacts associated with shadow flicker would be less than significant. Night sky impacts associated with aviation safety lighting would be significant; however, impacts to night skies may be reduced to less than significant with the implementation of an Aircraft Detection Lighting System.

ES 6.2 Air Quality and Climate Change

For air quality, the analysis area contains portions of five counties: Albany and Laramie Counties in Wyoming, and Jackson, Larimer, and Weld Counties in Colorado. Air pollutants tend to disperse into the atmosphere, becoming more spread out as they travel away from a source of pollution, and, therefore, cannot be confined within defined boundaries such as the boundary of the Project Area or county lines. Because of the nature of air pollutants, the air quality analysis area extends approximately 31 miles (50 kilometers) in all directions beyond the Project Area. A 31-mile radius was chosen to be consistent with minimum air quality analysis required for major source air quality permitting.

Construction of the Project would impact air quality because construction equipment, earthmoving, and travel on paved and unpaved roads would emit quantities of criteria pollutants and fugitive dust. Air quality impacts, including fugitive dust emissions from the two portable concrete batch plants, would be temporary, ceasing when construction of the Project is complete. The concrete batch plants would require air permits from the State air permitting agency (i.e., Wyoming Department of Environmental Quality).

The air permit would provide enforceable limits and potential air pollution mitigation measures to reduce air emissions impacts from the operation of the batch plants. The total pollutants emitted from Project construction would be a negligible portion of each county's total projected annual emissions. Estimated Project construction emissions would be well below the General Conformity *de minimis* thresholds and would not exceed Federal or State ambient air quality standards. Project operations would impact air quality because of O&M activities that would generate air pollutant emissions from equipment and vehicle exhaust, fugitive dust from soil disturbance, and travel on unpaved roads. Estimated emissions from O&M activities are significantly lower than construction emissions. Project O&M activity emissions of nonattainment pollutants would be well below the General Conformity *de minimis* thresholds, and Project operations would not exceed Federal or State ambient air quality standards. The Project would generate energy from a renewable resource and would result in significantly fewer emissions than if the same amount of energy were generated by fossil fuels. Based on the analyses of these issues, no significant impacts to air quality would be anticipated.

ES 6.3 Aquatic and Terrestrial Wildlife and Special-Status Species

Several factors influence the geographical occurrence and abundance of wildlife species, including vegetation, environmental conditions, population connectivity, and habitat quality. Therefore, the analysis area for potential effects on aquatic and terrestrial wildlife resources and special-status species varies depending on the resource type and what Project-related effects are assessed.

The Project would slightly decrease available habitat for big game species. During construction, ground disturbance would remove vegetation used by big game as forage. The noise associated with construction and intermittent O&M activities would temporarily deter big game from using available habitat. The Project Area intersects crucial or seasonal habitat and year-long habitats for big game. The Wyoming Game and Fish Department has not mapped big game migration corridors in the Project Area. Three herd management units (HMUs) completely overlap the Project Area, which amounts to approximately 2.4 percent of the total acreage of the three HMUs. Considering the percentage of impact relative to available habitat in the Project Area, big game individuals could be impacted by Project construction and operations, but impacts are not anticipated at the population or community levels. Impacts from noise and activities associated with construction and operations would cease when the activity was over, and impacts associated with ground disturbance would end when the disturbance was reclaimed as part of Project decommissioning. Increased vehicle and equipment traffic on new and existing access roads would increase the risk of vehicle collisions. These impacts would be reduced with the completion of construction activities, but would remain, at a lower level, for the duration of Project O&M. Throughout the life of the Project, most wildlife would be able to effectively cross Project roads during times of inactivity; vehicle mortalities are not anticipated to affect communities or populations of a species.

Construction across or near stream channels or other waterbodies could increase turbidity, sedimentation, or salinity and potentially spread aquatic invasive species that would degrade aquatic habitat. These effects would dissipate shortly after construction activities cease and sediment settles and are not anticipated to affect downstream aquatic species habitat or aquatic species populations or communities. It is conservatively anticipated that the volume of water required for construction of the Project would not exceed 200 acre-feet over the course of an 18-month construction period and could be acquired by entering into temporary water use agreements with landowners with existing water sources. Water also could be acquired by drilling temporary water wells that are not hydrologically connected to the Platte River so that no new depletions to the Platte River occur during construction. This volume and sources are not anticipated to have tangible effects on aquatic species communities or populations. No new water depletions are expected for Project O&M and, therefore, no effects on aquatic resources are anticipated from water withdrawals during that time.

Project construction and operations activities and vehicle traffic during construction and operations would disturb habitat for small game and nongame species and increase predation on these species from the introduction of new perching opportunities for avian predators until the disturbance was reclaimed as part of Project decommissioning and are not expected to effect populations or communities of a species. For one special-status species, the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), the Fish and Wildlife Service's Area of Influence overlaps a portion of the Project Area. There is moderate and moderately high suitable habitat present in that portion of the Project Area, but the species is not known to occur in the Project Area. The identified moderate and moderately high suitable habitat would be avoided to the extent practicable during Project construction. Based on the analysis of these issues, no significant impacts would be anticipated to terrestrial and aquatic wildlife and special-status species.

ES 6.4 Avian and Bat Species

Several factors influence the potential for avian and bat species to occur and persist in a given area, including the availability of suitable habitat, prey and forage, nesting or roosting substrate, and the level of disturbance present. Therefore, the analysis areas for potential effects on avian and bat wildlife resources vary by resource type and the Project-related effects being assessed.

Ground-disturbing construction and operations activities would impact avian and bat habitat through the removal of vegetation used by birds for nesting, foraging, and brood-rearing. Construction disturbance and operations infrastructure would impact 1,471.3 acres of habitat (5.6 percent of the Project Area) until those areas were reclaimed following construction and again during decommissioning. Anticipated bird fatalities from collisions with vehicles and meteorological towers, and electrocution from aboveground collector lines, would not be expected to cause population or community-level effects. The Project would develop and implement a Bird and Bat Conservation Strategy (BBCS) to avoid and reduce potential impacts that may result from Project operations. Collision and electrocution effects are not anticipated to impact communities or populations and would end with decommissioning.

Project construction and, to a lesser extent, O&M activities in the siting corridors, would disturb prey habitat and individual prey animals until construction activities cease or until disturbed areas are reclaimed during decommissioning, and are not anticipated to impact individual raptors or raptor communities or populations. Construction activities would remove vegetation that could serve as substrate for nesting avian species in the siting corridors until disturbed areas are reclaimed. Although some birds would be displaced from nesting in the siting corridors, it is anticipated that they would use suitable habitat outside the siting corridors during construction disturbance.

Noise and increased human presence from construction and O&M activities, equipment, and personnel would affect some individual birds' nesting success because of nest abandonment, direct mortality, reduced fitness and survivorship, and disturbance of nesting vegetation. Effects would decrease with the end of construction activities and cease with reclamation during decommissioning. The Project would develop and implement eagle conservation practices to minimize the take of eagles, including setting wind turbines back at least 1 mile from known eagle nests. A BBCS would be developed and implemented to avoid and reduce potential impacts to avian and bat species. Avian and bat species of concern would be impacted by habitat loss and fragmentation, increased activity, and vehicular traffic in the same ways described for avian and bat species more generally. While individuals may be at risk, populations are not anticipated to be affected.

The risk of bird and bat mortality from turbine blade collision would be slightly increased for the Siemens Gamesa 6.0 MW turbines because they would have more total wind-swept area compared to the Vestas 5.6 MW turbines and GE 3.0 MW turbines. The relationship between turbine height and bird and bat mortality risk is unclear for the range of turbines being considered. Project construction and O&M would disturb roost sites and hibernacula for bats if present in the siting corridors in rocky outcrops (0.48 percent

of the siting corridor area) or forested habitat (0.82 percent of the siting corridor area); however, bats could avoid these areas during construction, O&M, and decommissioning activities and return when activities cease and reclamation has been completed at each phase. Based on the analysis of these issues, impacts are expected to individual birds and bats, but would not be significant. Bird and bat populations are not expected to be affected.

The operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an Eagle Incidental Take Permit from the U.S. Fish and Wildlife Service and to implementing offset mitigations as agreed to with the USFWS prior to operation of the Project so that operation would comply with the Bald and Golden Eagle Protection Act.

ES 6.5 Cultural Resources and Native American Concerns

Cultural resources are locations that contain the physical evidence of past human behavior that allow for its interpretation, including prehistoric or historic sites, buildings, structures, objects, or districts, and any associated artifacts, records, and material remains (Advisory Council on Historic Preservation [ACHP] 2009). Such resources are identifiable through field survey, historic documentation, or other sources such as oral history. Significant cultural resources are those listed in or eligible for inclusion in the National Register of Historic Places [NRHP], and generally are referred to as historic properties (36 Code of Federal Regulations [CFR] 800.16(l)(1)). For clarification purposes, such resources are hereafter referred to as NRHP-eligible cultural resources. Resources of traditional religious and cultural significance to Native American tribes could be deemed eligible for listing on the National Register (ACHP 2009). Additionally, Native American tribes, ethnic or religious groups, organizations, communities, or the public could consider specific cultural resources to be of cultural, historic, or religious importance, regardless of their NRHP eligibility. National Historic Landmarks (NHLs) are cultural resources recognized to possess exceptional value commemorating or illustrating the history of the United States. The law and regulations require that agencies, “to the maximum extent possible, undertake such planning and actions as could be necessary to minimize harm to such landmark.”

The cultural resources analysis area is the area of potential effects (APE) for the Project, as defined by WAPA (per 36 CFR 800.16(l)(1)). The APE is the area within which NRHP-eligible cultural resources could sustain loss of integrity (as defined in 36 CFR 60.4) by alteration or destruction caused by the Project. The APE includes

- horizontally, the Project footprint, which entails the physical footprint of Project facilities within an approximately 26,000-acre area where Project facilities could be built;
- vertically, a maximum depth of 15 feet for the construction of the wind turbine foundations and a maximum height of 675 feet for construction of wind turbines; and
- a 10-mile zone surrounding the Project Area boundary within which NRHP-eligible cultural resources’ “setting” and/or “feeling” are determined critical to the resource’s NRHP eligibility.

The Project would not physically impact known NRHP-eligible cultural resources or known resources of potential traditional or religious cultural importance to Native Americans, as avoidance of these resources, as well as other cultural resources, where possible, is planned. If not avoidable, the programmatic agreement (PA) further addresses the minimization and mitigation of physical impacts and adverse effects.

The Project would result in nonphysical impacts to known NRHP-eligible cultural resources where setting and/or feeling are important characteristics contributing to the site’s NRHP eligibility, and possibly to resources of potential tribal importance, should they be identified in the Project viewshed within the 10-mile zone of the APE during the consultation process, or newly identified during the Class III survey for the Project. These nonphysical impacts would include significant impacts to the visual setting of the

Ames Monument National Historic Landmark and other NRHP-eligible sites whose setting and feeling are factors in their eligibility. Implementation of mitigation measures under the PA, including a Historic Properties Treatment Plan, would resolve all adverse effects under the NHPA, and result in mitigation to offset the significant impacts identified through this NEPA process.

ES 6.6 Geology, Soil, and Mineral Resources

For the purposes of evaluating impacts to geology and soils, the Project Area is the analysis area for geology. The analysis area for soils is the Project Area without a buffer.

The Project would not restrict access for mineral development as the likelihood of development is low and access would still be available for much of the Project Area. The Project is in areas with soils appropriate for construction and the Project would be designed and constructed so as not to increase the likelihood of geologic hazards or soil erosion. The impacts to unique or productive soils would be limited—approximately 164 acres of the prime farmland or farmland of statewide important soils would be permanently converted by the Project, which equates to approximately 2.5 percent of these soil types present within the siting corridors. Based on the analyses of these issues, no significant impacts would be anticipated to these resources.

ES 6.7 Land Use

The Project Area was selected as the analysis area for land use to capture the extent to which potential impacts from the Project could occur. County-level (Albany County) agricultural resource information was used to characterize agricultural resources within the Project Area.

The Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans. Existing land uses would be preserved to the extent possible. Land uses would be reestablished during decommissioning of the Project. The 0.3 acre of prime farmland and 1.7 acres of farmland of statewide importance (if irrigated) that would be converted to Project disturbance during O&M would be reclaimed as part of Project decommissioning. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

ES 6.8 Paleontological Resources

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under Federal and State laws, ordinances, and regulations. Paleontological resources include the rocks in which fossils are preserved because the geologic character of the rock record preserves the ecological, geographic, and evolutionary context of past life represented by fossils themselves. Paleontological resources are objects that are worthy of preservation for the inspiration and interpretive opportunities they offer. Once damaged, destroyed, or improperly collected, fossils lose their scientific and educational value. Scientific importance could be attributed to the actual fossil specimen, to fossil context (e.g., location in time and space or intimate association with other evidence of scientific importance), or to fossil preservation.

The analysis area for paleontological resources includes the Project siting corridors and a 0.5-mile buffer. Because paleontological resources could be encountered throughout a geologic unit, the analysis extends to geologic units that could be impacted by Project activities, whether at the surface or in the subsurface.

Impacts to paleontological resources would result from the discovery of fossils during construction activities. The Project includes appropriate measures for minimizing negative impacts to paleontological resources. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

ES 6.9 Public Health and Safety

Several aspects of public health and safety were evaluated, including accidents and injuries, fires, emergency services, criminal activities, noise and vibration, and electromagnetic field (EMF) and corona. The analysis area for potential effects on public health and safety varies by the aspect of public health and safety being assessed.

Potential risks to worker health and safety would be unavoidable; however, these risks would be minimized to the extent possible, and injury rates associated with the Project are not expected to exceed national occupational injury and illness rates. Fire risks and the potential for illegal or criminal activities associated with the Project would be minimized and would not increase the risk of public or worker exposure to health or safety risks. The Project would not exceed the capacities or materials or existing emergency responders that service the Project Area, nor would Project activities result in traffic delays that would lead to degradation of emergency response times. The Project would not increase the public's exposure to EMFs or corona sources, and workers would not be exposed to Project-related EMFs or corona sources. Based on the analyses of these issues, no significant impacts would be anticipated related to public or worker health and safety.

Construction of the Project would directly and unavoidably impact noise levels at sensitive receptors, but the impacts would cease with the end of construction. Because construction noise is exempt from the Albany County wind energy siting regulations (Albany County 2015), construction of the Project would not violate any allowable noise levels established by Federal, State, or local laws, regulations, or guidelines. Vibration from activities associated with Project construction would not be noticeable at the nearest noise sensitive area. If any blasting is required during Project construction, it would be limited to the hours between sunrise and sunset and comply with State and local blasting regulations, including the use of properly licensed personnel and obtaining necessary permits and authorizations. Acoustic modeling demonstrated that noise generated by Project operations would not exceed 55 A-weighted decibels (dBA) at any sensitive receptors. The acoustic modeling of the worst-case scenario indicated a possibility that there would be some locations of common property lines between nonparticipating private property and a participating property where the sound level might reach slightly above 55 dBA; however, it is highly unlikely that the actual noise levels at these locations would be as high as the worst-case scenario modeled. If the worst-case scenario occurs and if written landowner permission cannot be obtained at the locations where the sound level slightly exceeds 55 dBA, adjustment of final turbine locations could be necessary to comply with the Albany County wind energy siting regulations (Albany County 2015). Based on the analyses of these issues, no significant noise impacts are anticipated.

ES 6.10 Recreation Resources

The analysis area for overall recreation resources and opportunities is the Project Area plus a 50-mile buffer around the Project Area to capture the extent of recreation resources that would most likely be used by Project workers.

The Project could temporarily restrict or close portions of recreation areas in the Project Area; however, the use of recreation areas would not be entirely precluded. Noise during Project construction, O&M, and decommissioning would be unavoidable. Based on existing research, it is not known if Project noise would lead to the avoidance of the area by big and small game. However, if avoidance occurs, once construction and decommissioning activities are complete, it is anticipated that big and small game would return to the area; therefore, the quality of hunting opportunities is anticipated to remain similar to existing conditions. Increased demands on recreation resources from Project workers would not exceed the capacities or availability of existing recreation resources. Based on the analyses of these issues, no significant impacts would be anticipated to recreation resources.

ES 6.11 Social and Economic Resources (including Environmental Justice)

The analysis area for the social and economic resources assessment is Albany County, Wyoming, and Larimer County, Colorado.

The temporary population increase during construction is estimated to be approximately 1 percent of the current population of Albany County, and it would not result in a demand for housing or public services that could not be met by existing housing and capacity of public services. Construction and operations of the Project would provide increases in State and local tax revenues. The Project could contribute to changes in residential property values for nearby homes; however, detailed, peer-reviewed studies of the effects of wind facilities on residential property values have shown that residential property values could increase or decrease, are not statistically significant related to the announcement or presence of wind facilities, and are influenced by multiple other factors. Analysis of U.S. Census data do not indicate that there are high minority or low-income populations in the immediate vicinity of the Project. Based on the analysis of these issues, no significant adverse socioeconomic impacts are anticipated from the Project, including impacts to environmental justice populations.

ES 6.12 Transportation and Access

Several aspects of transportation and access were evaluated, including roadway traffic volumes and conditions (including access), railroad capacity, traffic patterns, and aviation and radar-dependent transportation operations. The analysis areas for potential effects on transportation and access varies by the aspect of transportation and access being assessed.

The Project would contribute to changes in traffic volumes on roadways; however, there would be no degradation to the level of service (LOS) for routes used for Project activities. The Project would increase traffic volumes at primary intersections and would result in degradation of LOS at two intersections from level A to level B during construction and decommissioning. These degradations of LOS would be limited to construction and decommissioning periods and would be expected to return to baseline conditions following completion of these Project phases. In addition, LOS level B would not restrict flows or result in declines in convenience at levels noticeable to drivers and would not exceed a LOS threshold that warrants mitigation. The Project would minimize the extent and duration of access restrictions and changes to traffic patterns. The Project would not exceed the capacity of existing railroads and would not disrupt existing and ongoing rail operations. The Project would not conflict with airport use or planning areas or airspace. Based on this analysis, no significant impacts to transportation and access are anticipated.

ES 6.13 Vegetation

The analysis area for vegetation resources, excluding noxious weeds, is the siting corridors. This analysis area captures areas of potential new ground disturbance (i.e., access roads, turbine pads, laydown yards) that would affect native vegetation communities if converted to Project-related features, as well as captures overarching changes to the landscape from Project construction and operations.

The analysis area for noxious weeds is the Project Area. This analysis area is appropriate as it considers secondary effects to vegetation communities from the potential spread of existing and new noxious weeds during vegetation removal activities associated with the Project.

Construction activities would remove vegetation and disturb soils, increasing the potential for noxious and invasive plant species to spread and/or become established. Measures to monitor (VEG-6) and treat (VEG-7) noxious and invasive species would minimize this risk. Following construction, 88 percent of disturbed vegetation would be reclaimed, and an additional 11 percent of disturbed vegetation would be reclaimed during decommissioning. Reclamation is expected to be successful in restoring native

vegetation cover based on the primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant environmental protection measures (EPMs). Fugitive dust from vehicles would affect plants growing in localized areas along access roads, and effects would diminish with the end of construction, occurring only occasionally during O&M. Based on this analysis, no significant impacts would be anticipated for vegetation.

ES 6.14 Wetland and Water Resources

The analysis area for wetland and water resources includes the siting corridors plus a 300-foot buffer around surface waterbodies (including wetlands) and areas where groundwater is shallow enough to be reached by the depth of disturbance. Potential Project impacts are not anticipated to affect impaired reaches downstream because of limited and localized Project disturbance, and therefore the analysis area does not include impacts to downstream resources outside of the analysis area other than potential depletions to the Platte River system.

Previous field investigations described in the “Surface Waters Assessment Report for the Hermosa West Wind Farm Project” noted that that project was not expected to contribute marked changes in sediment load (Environmental Resources Management Southwest, Inc. [ERM] 2010a). The Project would not reduce water availability. Project activities would not connect groundwater aquifers, and aquifers in the Project Area have a high recharge rate. Construction would disturb up to approximately 9.9 acres of wetlands during construction and 0.8 acre of wetlands during operations. The Project would include 186 stream crossings for a total of 23,157.4 linear feet. Of these stream crossings, 17 would be perennial and 169 would be ephemeral or intermittent. Under the Clean Water Act, several of the ephemeral waterbodies within the siting corridors could be considered non- waters of the U.S. (WOTUS) by the Army Corps of Engineers (ACE), and jurisdictional status would need to be determined. If WOTUS could be impacted, ConnectGen would complete a formal WOTUS delineation prior to construction and would use these results to further microsite the Project to avoid or minimize potential impacts to jurisdictional WOTUS, to the extent practicable, and support final Clean Water Act Section 404 and Executive Order 11990 permitting requirements (WQ-5). ConnectGen has committed to minimizing and mitigating potential impacts to wetlands and WOTUS through use of EPMs and would comply with Section 404 permitting for any potential impacts to wetlands and/or WOTUS. ConnectGen has committed to spill containment and hazardous materials storage and use measures to minimize potential impacts to surface water and wetlands. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

ES 6.15 Wildland Fire

The following analysis areas have been identified to evaluate the extent to which potential impacts from the Project could occur on wildland fire resources and conditions:

- Fire history: This analysis area includes the Project Area plus a 20-mile buffer. This extent demonstrates the variation in fire frequency and fire size on adjacent lands relative to fire occurrence in the Project Area.
- Fuels and fire behavior: This analysis area includes the Project Area.

Construction and operation of the Project would increase the potential risk of wildfire ignitions. The Project would comply with Wyoming electrical safety codes and standards, including the National Electric Code, and would implement setbacks and other measures that would mitigate this risk. In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, Wyoming, a fire suppression system would be installed inside each wind turbine’s nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The incidence of turbine-ignited fires is rare, and wildfire ignitions in

the Project Area are infrequent. A Supervisory Control and Data Acquisition system would detect any fire impacting infrastructure and shut down affected systems. Local fire departments would respond to fires in the Project Area to prevent fire from spreading and extinguish them. These response resources will be supported by a large contingent of State and Federal fire responders through established mutual aid agreements. Based on this analysis, no significant impacts to wildland fire are anticipated.

CONTENTS

Chapter 1. Introduction	1-1
1.1 Western Area Power Administration’s Purpose, Need, and Decision	1-1
1.2 ConnectGen’s Goals and Objectives	1-3
1.3 Regulatory Framework.....	1-3
1.3.1 Federal Statutes.....	1-4
1.3.2 Federal Regulations	1-4
1.3.3 Federal Executive Orders and Guidelines	1-4
1.3.4 State Requirements	1-5
1.3.5 Albany County Wind Energy Siting Requirements.....	1-6
1.4 Cooperating Agencies	1-7
1.5 Tribal Consultation.....	1-7
Chapter 2. Proposed Federal Action and Alternatives, and ConnectGen’s Project Description	2-1
2.1 Western Area Power Administration’s Proposed Federal Action	2-1
2.1.1 Interconnection Switchyard.....	2-1
2.1.2 Transmission System Upgrades.....	2-1
2.1.3 No Action Alternative	2-1
2.1.4 Proposed Federal Action Alternative Considerations.....	2-2
2.1.5 Agency-Preferred and Environmentally Preferred Alternatives.....	2-2
2.2 ConnectGen’s Rail Tie Wind Project.....	2-2
2.2.1 Wind Generation Project Facilities.....	2-4
2.2.2 Construction Activities	2-8
2.2.3 Construction Equipment.....	2-9
2.2.4 Operations and Maintenance Activities.....	2-15
2.2.5 Decommissioning	2-18
2.2.6 Environmental Protection Measures and Impact Minimization Measures	2-21
2.2.7 Rail Tie Wind Project Planning.....	2-40
2.3 Summary of Impacts (<i>table</i>).....	2-41
Chapter 3. Affected Environment and Environmental Consequences	3-1
3.1 Introduction	3-1
3.2 Aesthetics and Visual Resources.....	3-1
3.2.1 Regulatory Background.....	3-1
3.2.2 Data Sources	3-2
3.2.3 Analysis Area	3-2
3.2.4 Baseline Description.....	3-2
3.2.5 Impacts to Resource.....	3-7
3.2.6 Aesthetics and Visual Resources Conclusion.....	3-14
3.3 Air Quality and Climate	3-14
3.3.1 Regulatory Background.....	3-14
3.3.2 Data Sources	3-16
3.3.3 Analysis Area	3-16
3.3.4 Baseline Description.....	3-18
3.3.5 Impacts to Resource.....	3-19
3.3.6 Air Quality and Climate Conclusion	3-23
3.4 Aquatic and Terrestrial Wildlife and Special-Status Species	3-23
3.4.1 Regulatory Background.....	3-23

3.4.2 Data Sources 3-24

3.4.3 Analysis Area 3-24

3.4.4 Baseline Description..... 3-25

3.4.5 Impacts to Resource..... 3-30

3.4.6 Aquatic and Terrestrial Wildlife and Special-Status Species Conclusion 3-40

3.5 Avian and Bat Species..... 3-41

3.5.1 Regulatory Background..... 3-41

3.5.2 Data Sources 3-42

3.5.3 Analysis Area 3-42

3.5.4 Baseline Description..... 3-43

3.5.5 Impacts to Resource..... 3-52

3.5.6 Avian and Bat Species Conclusion..... 3-61

3.6 Cultural Resources and Native American Concerns 3-62

3.6.1 Regulatory Background..... 3-62

3.6.2 Data Sources 3-63

3.6.3 Analysis Area 3-63

3.6.4 Baseline 3-65

3.6.5 Impacts to Resource..... 3-67

3.6.6 Cultural Resources and Native American Concerns Conclusion 3-74

3.7 Geology, Soil, and Mineral Resources 3-75

3.7.1 Regulatory Background..... 3-75

3.7.2 Data Sources 3-75

3.7.3 Analysis Area 3-76

3.7.4 Baseline Description..... 3-76

3.7.5 Impacts to Resource..... 3-79

3.7.6 Geology, Soil, and Mineral Resources Conclusion 3-84

3.8 Land Use 3-84

3.8.1 Regulatory Background..... 3-84

3.8.2 Data Sources 3-85

3.8.3 Analysis Area 3-86

3.8.4 Baseline Description..... 3-86

3.8.5 Impacts to Resource..... 3-89

3.8.6 Land Use Conclusion..... 3-92

3.9 Paleontological Resources..... 3-92

3.9.1 Regulatory Background..... 3-92

3.9.2 Data Sources 3-92

3.9.3 Analysis Area 3-93

3.9.4 Baseline Description..... 3-93

3.9.5 Impacts to Resource..... 3-95

3.9.6 Paleontological Resources Conclusion..... 3-97

3.10 Public Health and Safety 3-97

3.10.1 Regulatory Background..... 3-97

3.10.2 Data Sources 3-98

3.10.3 Analysis Area 3-99

3.10.4 Baseline Description..... 3-99

3.10.5 Impacts to Resource..... 3-106

3.10.6 Public Health and Safety Conclusions..... 3-115

3.11 Recreation Resources 3-116

3.11.1 Regulatory Background..... 3-116

3.11.2 Data Sources 3-117

3.11.3	Analysis Area	3-117
3.11.4	Baseline Description.....	3-118
3.11.5	Impacts to Resource.....	3-125
3.11.6	Recreation Resources Conclusion	3-128
3.12	Social and Economic Resources (including environmental justice).....	3-129
3.12.1	Regulatory Background.....	3-129
3.12.2	Data Sources	3-129
3.12.3	Analysis Area	3-129
3.12.4	Baseline Description.....	3-130
3.12.5	Impacts to Resource.....	3-132
3.12.6	Social and Economic Resources (including environmental justice) Conclusion.....	3-136
3.13	Transportation and Access	3-137
3.13.1	Regulatory Background.....	3-137
3.13.2	Data Sources	3-138
3.13.3	Analysis Areas.....	3-138
3.13.4	Baseline Description.....	3-138
3.13.5	Impacts to Resource.....	3-143
3.13.6	Transportation and Access Conclusion	3-149
3.14	Vegetation	3-150
3.14.1	Regulatory Background.....	3-150
3.14.2	Data Sources	3-150
3.14.3	Analysis Area	3-150
3.14.4	Baseline Description.....	3-151
3.14.5	Impacts to Resource.....	3-155
3.14.6	Vegetation Conclusion	3-157
3.15	Wetland and Water Resources.....	3-158
3.15.1	Regulatory Background.....	3-158
3.15.2	Data Sources	3-161
3.15.3	Analysis Area	3-161
3.15.4	Baseline Description.....	3-161
3.15.5	Impacts to Resource.....	3-163
3.15.6	Wetland and Water Resources Conclusion.....	3-174
3.16	Wildland Fire.....	3-175
3.16.1	Regulatory Background.....	3-175
3.16.2	Data Sources	3-175
3.16.3	Analysis Area	3-175
3.16.4	Baseline Description.....	3-176
3.16.5	Impacts to Resource.....	3-177
3.16.6	Wildland Fire Conclusion.....	3-180
Chapter 4.	Cumulative Impacts	4-1
4.1	Physical and Temporal Boundaries of Cumulative Impacts	4-1
4.2	Past and Present, and Reasonably Foreseeable Future Actions.....	4-1
4.3	Cumulative Impacts by Resource.....	4-3
4.3.1	Aesthetics and Visual Resources.....	4-3
4.3.2	Air Quality and Climate	4-3
4.3.3	Aquatic and Terrestrial Wildlife and Special-Status Wildlife Species.....	4-3
4.3.4	Avian and Bat Species.....	4-3
4.3.5	Cultural Resources and Native American Concerns.....	4-4
4.3.6	Geology, Soils, and Mineral Resources.....	4-6

4.3.7 Land Use.....4-6

4.3.8 Paleontological Resources4-6

4.3.9 Public Health and Safety4-6

4.3.10 Recreation Resources4-6

4.3.11 Social and Economic Resources4-6

4.3.12 Transportation and Access.....4-7

4.3.13 Vegetation.....4-7

4.3.14 Wetland and Water Resources.....4-7

4.3.15 Wildland Fire.....4-7

4.4 Cumulative Impacts Summary4-7

Chapter 5. Consultation and Coordination.....5-1

5.1 Public Involvement and Scoping.....5-1

5.1.1 Public Involvement.....5-1

5.1.2 Scoping Period.....5-1

5.1.3 Draft Environmental Impact Statement Comment Period5-2

5.2 Agency Participation and Coordination5-2

5.2.1 Federal, State, and Local Agencies.....5-2

5.2.2 Government-to-Government and Section 106 Consultation5-3

5.2.3 Biological Coordination and Consultation5-4

5.3 Preparers and Reviewers5-4

5.3.1 Western Area Power Administration.....5-4

5.3.2 SWCA Environmental Consultants5-4

Chapter 6. References6-1

Appendices

- Appendix A. Rail Tie Wind Project Description
- Appendix B. Programmatic Agreement
- Appendix C. Public Comments and Associated Responses

Figures

Figure 1-1. Project location..... 1-2

Figure 2-1. Project siting corridors.2-6

Figure 3-1. Scenic quality in the analysis area for visual resources.3-4

Figure 3-2. Location of KOPs in the analysis area for visual resources.3-6

Figure 3-3. Air quality analysis area.....3-17

Figure 3-4. Mule deer crucial winter range in the Project Area.....3-33

Figure 3-5. Potential prey bases for raptors within the Project Area.3-47

Figure 3-6. Observed raptor nests by species within a 2-mile buffer of the Project Area.3-48

Figure 3-7. Cultural resources analysis area.3-64

Figure 3-8. Cultural resources key observation points.....3-68

Figure 3-9. Mapped geologic units within the Project Area.3-77

Figure 3-10. Land use in and around the Project Area.3-88

Figure 3-11. Potential Fossil Yield Classification rankings in the Project Area.....3-94

Figure 3-12. Emergency service providers.3-101

Figure 3-13. Recreational opportunities within the analysis area.3-119
 Figure 3-14. Recreational opportunities within the Project Area.....3-120
 Figure 3-15. Recreation resources.3-123
 Figure 3-16. Transportation.3-139
 Figure 3-17. National Land Cover Database land cover types within the Project Area.3-152
 Figure 3-18. Erosion hazard rating.3-168
 Figure 3-19. Aquifer and Groundwater Features.3-170
 Figure 4-1. Cumulative wind project viewshed overlap.4-5

Tables

Table 1-1. Albany County Wind Energy Siting Regulations..... 1-7
 Table 2-1. Estimated Acres of Project Disturbance 2-3
 Table 2-2. Potential Turbine Specifications..... 2-5
 Table 2-3. Project Construction Equipment..... 2-9
 Table 2-4. General Project Road Specifications 2-11
 Table 2-5. Typical Construction Schedule of Wind Energy Projects 2-14
 Table 2-6. ConnectGen’s Environmental Protection Measures and Impact Minimization Measures 2-22
 Table 2-7. ConnectGen’s Future Environmental-Related Plans 2-39
 Table 2-8. Summary of Impacts..... 2-41
 Table 3-1. Key Observation Points within Analysis Area 3-5
 Table 3-2. Criteria for Assessing Level of Impacts to Visual Resources 3-7
 Table 3-3. Degrees of Visual Change for Travelers – Minimum Turbine Height 3-10
 Table 3-4. Degrees of Visual Change for Tourists and Recreational Users – Minimum Turbine Height..... 3-11
 Table 3-5. Degrees of Visual Change for Residents—Minimum Turbine Height..... 3-12
 Table 3-6. Ambient Air Quality Standards 3-15
 Table 3-7. 2017 County Emissions Inventories (tons per year)..... 3-18
 Table 3-8. Estimated Project Construction Emissions (tons per year)..... 3-20
 Table 3-9. Estimated Project Annual Operations and Maintenance Emissions (tons per year)..... 3-22
 Table 3-10. Special-Status Wildlife and Plant Species with Potential to be Impacted by the Project..... 3-27
 Table 3-11. Aquatic and Terrestrial Wildlife Species of Concern with Potential to Occur in the Project Area 3-29
 Table 3-12. Raptor Species Expected to Occur in the Project Area or Recorded During Surveys..... 3-45
 Table 3-13. Bat Species Expected to Occur in the Project Area or Recorded in Surveys 3-49
 Table 3-14. Wyoming Avian and Bat Species of Greatest Conservation Need, Birds of Conservation Concern, and Species of Concern with Potential to Occur in the Project Area..... 3-50
 Table 3-15. Expected Project Disturbance by Disturbance Type 3-54
 Table 3-16. Size and Estimated Wind-Swept Area of Potential Turbines 3-56
 Table 3-17. Potential Project Disturbance by Prey Base Type 3-58
 Table 3-18. Characteristics of Cultural Periods in Southeastern Wyoming and Northeastern Colorado..... 3-65
 Table 3-19. Summary of Known NRHP-Eligible Cultural Resources within the Project Siting Corridors where Adverse Physical Impacts Could Occur if Not Avoided, Minimized, or Mitigated..... 3-71

Table 3-20. Summary of Known NRHP-Eligible Cultural Resources within the Analysis Area (the 10-mile zone of the APE) where Adverse Nonphysical Impacts Could Occur if Not Avoided, Minimized, or Mitigated 3-71

Table 3-21. Assessment of Nonphysical Impacts to NRHP-Eligible Cultural Resources 3-73

Table 3-22. Soils in the Project Area 3-81

Table 3-23. Paleontological Sensitivity of the Geologic Units within the Project Area 3-95

Table 3-24. National Occupational Injury and Illness Rates in 2018 3-102

Table 3-25. Typical Sound Levels Measured in the Environment and Industry 3-104

Table 3-26. Project Construction Equipment Roster Used for Noise Analysis 3-114

Table 3-27. Project Operations Acoustic Modeling Results Summary 3-115

Table 3-28. Wyoming Game and Fish Department–Classified Streams within the Project Area 3-121

Table 3-29. Analysis Area Population 3-130

Table 3-30. Low-Income and Minority Populations 3-131

Table 3-31. Housing Characteristics of Analysis Area 3-132

Table 3-32. Median Value of Owner-Occupied Housing 3-132

Table 3-33. Interstate and State Highways within the Project Analysis Area 3-140

Table 3-34. Primary Intersections within the Project Analysis Area 3-140

Table 3-35. Estimated Traffic Volumes and Baseline Level of Service for Highways within the Transportation Analysis Area 3-141

Table 3-36. Estimated Traffic Volumes and Baseline Level of Service for Primary Intersections within the Transportation Analysis Area 3-141

Table 3-37. Estimated Traffic Volumes and Level of Service for Haul Routes used during Peak Construction 3-145

Table 3-38. Estimated Traffic Volumes and Level of Service for Primary Intersections used during Peak Construction 3-146

Table 3-39. Estimated Traffic Volumes and Level of Service for Primary Intersections used during Decommissioning 3-147

Table 3-40. National Land Cover Database Land Cover Types within Proposed Siting Corridors 3-153

Table 3-41. Field-Verified National Land Cover Database Land Cover Types within Proposed Siting Corridors 3-154

Table 3-42. Acres of Disturbance by National Land Cover Database Land Cover Types within Proposed Siting Corridors 3-156

Table 3-43. Surface Water Crossings within the Disturbance Area 3-166

Table 3-44. Disturbance per HUC 12 Subwatershed Overlapping Project Area 3-167

Table 3-45. Wetland Disturbance by Wetland Type and Project Stage 3-172

Table 3-46. Previous Fire History 3-176

Table 4-1. Reasonably Foreseeable Future Actions Included in Cumulative Impacts Analysis 4-2

Table 5-1. Agencies Contacted to Initiate Coordination 5-2

Table 5-2. Tribes Invited to be Consulting Parties under National Historic Preservation Act Section 106 5-3

Table 5-3. Western Area Power Administration Environmental Impact Statement Team 5-4

Table 5-4. SWCA Environmental Consultants Environmental Impact Statement Team 5-5

ACRONYMS AND ABBREVIATIONS

AADT	annual average daily traffic
ACE	Army Corps of Engineers
ACFD	Albany County Fire District
ACHP	Advisory Council on Historic Preservation
ACZR	Albany County Zoning Resolution
ADLS	Aircraft Detection Lighting System
APE	area of potential effects
APLIC	Avian Power Line Interaction Committee
BBCS	Bird and Bat Conservation Strategy
BCC	Birds of Conservation Concern
BCR	Bird Conservation Regions
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	Bureau of Land Management
BLS	U.S. Bureau of Labor Statistics
BMPs	best management practices
B.P.	radiocarbon years before present
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
ConnectGen	ConnectGen Albany County LLC
CPW	Colorado Parks and Wildlife
CR	county roadway
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DOE	Department of Energy
DNA	deoxyribonucleic acid
EIS	environmental impact statement
EITP	Eagle Incidental Take Permit
EMF	electric and magnetic field
EMT	emergency medical technician
EO	Executive Order
EPA	Environmental Protection Agency

EPMs	environmental protection measures
ERM	Environmental Resources Management Southwest, Inc.
ESA	Endangered Species Act of 1973
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FS	Forest Service
FSA	Farm Service Agency
FWS	Fish and Wildlife Service
GE	General Electric Company
gen-tie line	generation-tie line
GHG	greenhouse gas
GIS	geographic information system
HAP	hazardous air pollutants
HMA	hunter management area
HMU	herd management unit
HPTP	Historic Properties Treatment Plan
HPVIA	Historic Properties Visual Impact Assessment
HUC	hydrologic unit code
ISC	Industrial Siting Council
KOP	key observation point
kV	kilovolts
LGIP	Large Generator Interconnection Process
LOS	level of service
LU	land use
m	meter
Ma	million years old
met tower	meteorological tower
mph	miles per hour
MW	megawatts
NAAQS	National Ambient Air Quality
NASS	National Agricultural Statistic Service
NEPA	National Environmental Policy Act

NHD	National Hydrography Dataset
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NIEHS	National Institute of Environmental Health Sciences
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise sensitive area
NWR	National Wildlife Refuge
O&M	operations and maintenance
OAHP	Colorado SHPO's Office of Archaeology and Historic Preservation
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
PA	programmatic agreement
PCA	Priority Conservation Area
PFYC	Potential Fossil Yield Classification
PGA	Priority Growth Areas
PHV	peak hour volume
PPE	personal protective equipment
Project	Rail Tie Wind Project
RFFA	reasonably foreseeable future action
ROW	right-of-way
RPS	renewable portfolio standard
RSZ	rotor-swept zone
RV	recreational vehicle
SCADA	Supervisory Control and Data Acquisition
SGCN	Species of Greatest Conservation Need
SGIA	Small Generator Interconnection Agreement
SHPO	State Historic Preservation Office
SOC	Species of Concern (as designated by Wyoming Ecological Services Field Office)
SPCC Plan	Spill Prevention, Control, and Countermeasures Plan
SWAP	State Wildlife Action Plan

SWPPP	Stormwater Pollution Prevention Plan
Tariff	Open Access Transmission Service Tariff
TCP	Traditional Cultural Properties or Places
TNC	The Nature Conservancy
tpy	tons per year
UPRR	Union Pacific Railroad
U.S.	United States
U.S. 287	U.S. Highway 287
USGS	U.S. Geological Survey
VCR	visual contrast rating
VOC	volatile organic compound
WAPA	Western Area Power Administration
WECS Permit	Commercial Wind Energy Conversion System Permit
WEG	Fish and Wildlife Service’s “Land-Based Wind Energy Guidelines”
WIA	walk-in area
WHMA	Wildlife Habitat Management Area
WOGCC	Wyoming Oil and Gas Conservation Commission
WOTUS	waters of the U.S.
W.S.	Wyoming Statutes
WSGALT	Wyoming Stock Growers Land Trust
WSGS	Wyoming State Geological Survey
WTG	wind turbine generator
WQD	Water Quality Division
WYCRO	Wyoming State Historic Preservation Office Cultural Records Office
WYDEQ	Wyoming Department of Environmental Quality
WYDOT	Wyoming Department of Transportation
WYESFO	Wyoming Ecological Services Field Office
WYGFD	Wyoming Game and Fish Department
WYPDES	Wyoming Pollutant Discharge Elimination System
WYSEO	Wyoming State Engineer’s Office
Y.A.	calendar years ago

CHAPTER 1. INTRODUCTION

The Rail Tie Wind Project (Project) is a proposed utility-scale wind energy facility under development by ConnectGen Albany County LLC (ConnectGen). The Project would be located in southeastern Albany County, Wyoming, and the Project Area would encompass approximately 26,000 acres of rangeland on private and Wyoming State Lands located near Tie Siding, Wyoming. No federally managed lands are located within the Project Area (figure 1-1). The Project would have a generating capacity of up to 504 megawatts (MW) of renewable wind energy.

ConnectGen has applied to interconnect the Project to the existing Ault-Craig 345-kilovolt (kV) transmission line that intersects the Project Area, under the Western Area Power Administration's (WAPA) Large Generator Interconnection Process (LGIP). The Ault-Craig 345-kV transmission line is jointly owned by WAPA, Tri-State Generation and Transmission Association, and Platte River Power Authority. In accordance with its Open Access Transmission Service Tariff (Tariff), WAPA's consideration to grant an interconnection request is a Federal action subject to environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and the Department of Energy (DOE) and Council on Environmental Quality (CEQ) NEPA implementing regulations. Under these regulations, ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system.

1.1 Western Area Power Administration's Purpose, Need, and Decision

ConnectGen has requested to interconnect its proposed Project to the Ault-Craig 345-kV transmission line via a new interconnection switchyard in the Project Area. WAPA's purpose and need is to consider and respond to the request for an interconnection agreement in accordance with its Tariff and the Federal Power Act, 16 United States Code 791 et seq., as amended.

Under the Tariff, WAPA offers capacity on its transmission system to deliver electricity when capacity is available. The Tariff also contains terms for processing requests for the interconnection of generation facilities to WAPA's transmission system. The Tariff substantially conforms to Federal Energy Regulatory Commission (FERC) final orders that provide for nondiscriminatory transmission system access. WAPA originally filed its Tariff with FERC on December 31, 1997, pursuant to FERC Order Nos. 888 and 889. Responding to FERC Order No. 2003, WAPA submitted revisions regarding certain Tariff terms and included the LGIP and a Large Generator Interconnection Agreement in January 2005. In response to FERC Order No. 2006, WAPA submitted additional term revisions and incorporated Small Generator Interconnection Procedures and a Small Generator Interconnection Agreement in March 2007. In September 2009, WAPA submitted yet another set of revisions to address FERC Order No. 890 requirements along with revisions to existing terms.

In reviewing interconnection requests and making its decision, WAPA must ensure that existing reliability and service are not degraded. WAPA's LGIP provides for transmission and system studies to ensure that system reliability and service to existing power customers are not adversely affected by new interconnections. These studies also identify system upgrades or additions necessary to accommodate interconnection of the Project and address whether the upgrades/additions are within the Project scope.

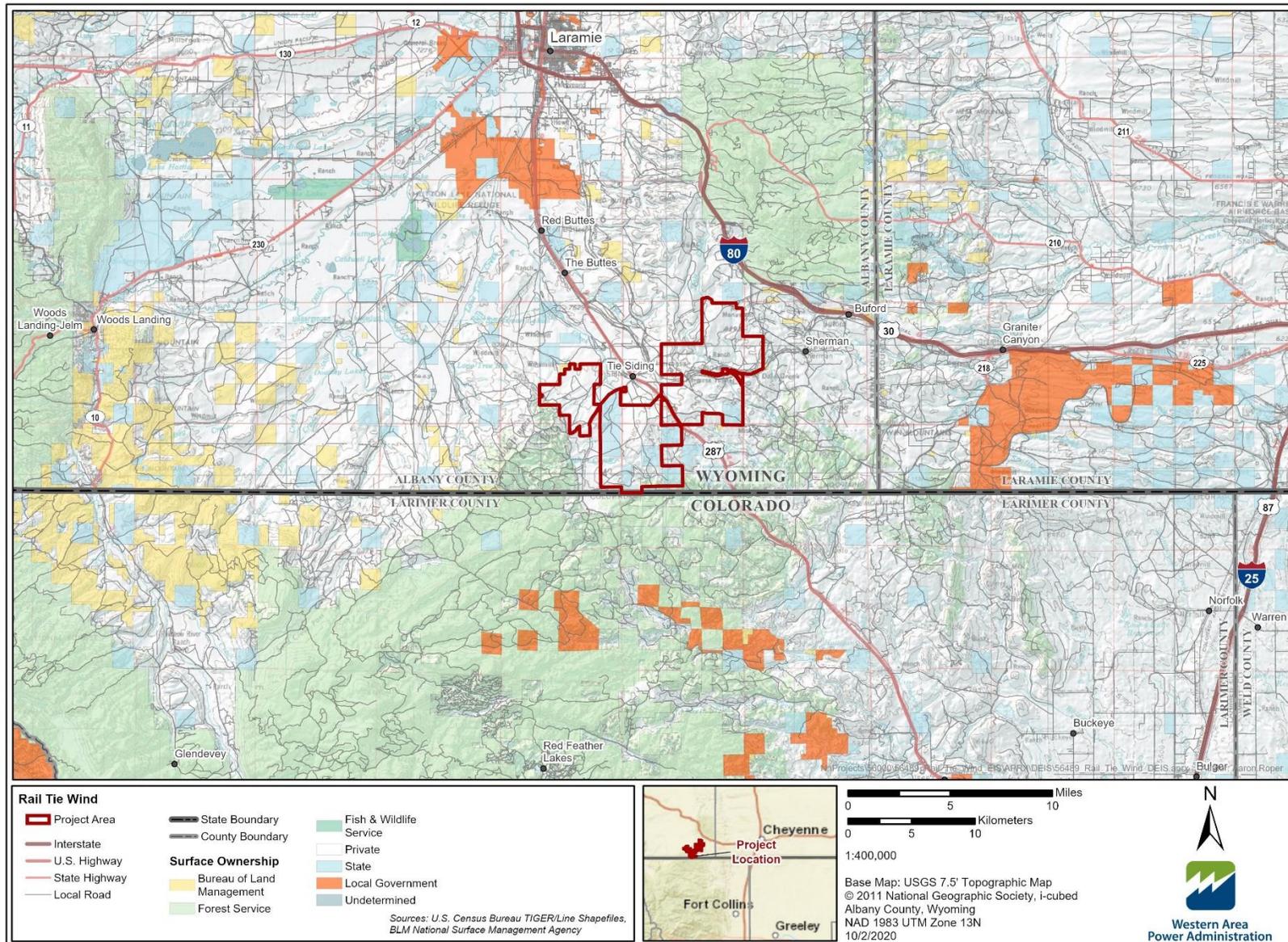


Figure 1-1. Project location.

1.2 ConnectGen's Goals and Objectives

ConnectGen's goal is to obtain an interconnection agreement with WAPA in order to transmit the renewable energy generated by the Project to potential customers using WAPA's transmission system. ConnectGen's objectives are to:

1. Develop, construct, and operate a commercial wind energy generation facility capable of generating up to 504 MW of wind energy.
2. Interconnect to WAPA's transmission system via a direct interconnection to the Ault to Craig 345-kV transmission line.
3. Serve increasing market demand within the Western Interconnection, driven by state renewable portfolio standard (RPS) mandates and clean energy goals, the low cost of wind energy generation, and planned retirements of thermal generation facilities.
4. Create temporary and permanent jobs in Albany County and contribute to Albany County's tax base.
5. Support landowners through diversification of revenue streams.
6. Offset approximately 900,000 metric tons of carbon dioxide emissions annually compared to thermal U.S. electric generation
7. Provide emissions free energy for the equivalent of approximately 180,000 households.

Thirty-seven states now have an RPS, or goal, for electricity produced by renewable energy sources, such as wind, solar, biomass, and geothermal sources. In addition to the demand driven by state RPS mandates and clean energy goals, there is increased demand from western load-serving entities because of the low cost of wind energy and planned retirements of thermal generation plants. The cost of generating electricity from wind continues to trend downward (DOE 2018), approaching costs competitive with existing conventional generation, even when considering nonsubsidized prices (Lazard 2019). Many western utilities have announced ambitious plans to add large amounts of renewable energy to their portfolios in the coming years. These drivers of demand create a dynamic marketplace in which wind energy can be generated in one location and transmitted to another. Energy generation and transmission locations are influenced by market conditions and power purchase agreements between wind energy developers and the utility or large-scale consumer purchasing the electricity. The Project is complementary to ConnectGen's renewable energy generation strategy and would contribute to the generation resource pool needed to meet future load and state RPS requirements.

1.3 Regulatory Framework

Construction of the Project would need to comply with the Federal, State, and local statutes, regulations, and permit requirements listed below. Many of the specific requirements listed below are described by resource in chapter 4. Compliance with some of these requirements would be achieved through completion of the environmental impact statement (EIS) process, but the responsibility for compliance during the construction, operations and maintenance (O&M), and eventual decommissioning of the Project would rest with ConnectGen. WAPA would comply with applicable regulations for its interconnection switchyard should the Project be constructed.

1.3.1 Federal Statutes

- NEPA, as amended
- Endangered Species Act of 1973 (ESA), as amended
- National Historic Preservation Act (NHPA), as amended
- Clean Air Act, as amended
- Clean Water Act (CWA), as amended
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act (BGEPA)

1.3.2 Federal Regulations

- CEQ Regulations for Implementing the Procedural Provisions of the NEPA (40 Code of Federal Regulations [CFR] 1500–1508) (prior to July 2020 rule revisions)¹
- DOE NEPA Implementing Procedures (10 CFR 1021)
- DOE Compliance with Floodplain/Wetlands Environmental Review Requirements (10 CFR 1022)
- Interagency Cooperation, ESA, as amended (50 CFR 402)
- Protection of Historic Properties (36 CFR 800)
- General (Clean Air Act) Conformity Regulations (40 CFR 93(b))
- National Pollutant Discharge Elimination System permitting requirements under Section 402 of the CWA
- Dredge and fill permitting requirements under Section 404 of the CWA

1.3.3 Federal Executive Orders and Guidelines

- EO 13175, November 2000: Consultation and Coordination with Indian Tribal Governments
- EO 13834, May 2018: Efficient Federal Operations (only Sections 5, 7, 11 active)
- EO 12948, January 30, 1995: Amendment to EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 1994
- EO 11990, May 1977, as amended: Protection of Wetlands (Section 6 amended by EO 12608 of September 9, 1987)
- EO 11988, May 24, 1977, as amended: Floodplain Management (Section 2 amended by EO 12148 of July 20, 1979)
- DOE P 451.1, December 2017: NEPA Compliance Program

¹ The CEQ issued a final rule, on July 16, 2020, to update its regulation for Federal agencies to implement the NEPA. This update has an effective date of September 14, 2020. A 12-month period from the effective date is provided for Federal agencies to develop or revise their proposed procedures for implementing the procedural provisions of the NEPA. The DOE is currently working to revise the agency's procedures in order to conform with updated CEQ regulations. Additionally, the NEPA process for this Project was initiated prior to the effective date of September 14, 2020. For these reasons, this EIS is being completed in conformance with the CEQ regulations prior to the July 2020 rule revisions.

- DOE O 436.1, May 2011: Environmental Protection Program (addresses greenhouse gas [GHG] reduction goals, use of renewable energy, and promotion of renewable energy projects in accordance with Section 2(a)(ii))
- DOE F 1325.8, December 2006: Memorandum Need to Consider Intentional Destructive Acts in NEPA Documents
- Federal Aviation Administration (FAA) Advisory Circular AC 70/7460-1L, Change 2 (August 2018)
- Fish and Wildlife Service (FWS) “Final Land-Based Wind Energy Guidelines: Recommendations” on measures to avoid, minimize, and compensate for effects to fish, wildlife, and their habitats. (March 2012)
- “FWS Turbine Guidelines Advisory Committee Recommendations to the Secretary” (April 2010)

1.3.4 State Requirements

The following is a list of State and local regulatory requirements:

- Wyoming Industrial Development Information and Siting Act permitting requirements
This Act requires certain industrial facilities to receive a permit from the Wyoming Industrial Siting Council (ISC) prior to construction. For wind energy projects, those with 20 or more turbines are required to receive a permit. On September 1, 2020, the Wyoming Department of Environmental Quality (WYDEQ) Industrial Siting Division held a jurisdictional meeting with representatives of ConnectGen. At this meeting, it was determined that the Rail Tie Wind Project is jurisdictional to this Act, as it contemplates development of greater than 20 turbines. Pursuant to Wyoming Statutes (W.S.) 35-12-106, ConnectGen applied for a permit from the Wyoming ISC. On July 21, 2021, a permit was issued for the Project. Project conditions were applied with the approval of this permit (see section 2.2.6, “Environmental Protection Measures”).
- Wyoming Office of State Lands and Investments lease for use of State lands
The Wyoming Office of State Lands and Investments considered a lease for use of State lands for the Project, which was a separate process from WAPA’s interconnection consideration. ConnectGen submitted an application for use of State lands in 2020. ConnectGen’s application was approved on January 21, 2021, by the State Board of Land Commissioners.
- WYDEQ, Air Quality Division air quality permitting
- WYDEQ, Water Quality Division (WQD) water quality permitting (Section 401 Water Quality Certification, Construction Storm Water Permit)
 - Isolated wetlands: A Wyoming Pollutant Discharge Elimination System (WYPDES) General Permit for Wetland Mitigation is required in circumstances where the discharge of dredge or fill material results in the loss or destruction of greater than one cumulative acre of (1) naturally occurring isolated wetlands or (2) human-made isolated wetlands used to mitigate the loss of naturally occurring wetlands. Prior to commencement of the discharge, a notice of intent and mitigation plan to offset the loss of wetland function and values must be filed with the administrator of the WQD. Isolated wetlands are those wetlands, as defined in W.S. 35-11-103(c)(x), that do not meet the Federal definition of waters of the U.S. (WOTUS) and regulated under the Federal CWA, but meet the State’s definition of waters of the State, as defined in W.S. 35-11-103(c)(vi). Additional information is available at <http://deq.wyoming.gov/wqd/discharge-permitting/>.

- Spill reporting: Wyoming Water Quality Rules and Regulations, Chapter 4, requires that the WQD be notified of any oil or hazardous substances that have been released and that enter, or threaten to enter, waters of the State. Spills can be reported to WYDEQ by calling (307) 777-7501 or through the following website: <http://deq.wyoming.gov/admin/spills-and-emergency-response/>.
- Turbidity waiver requirements: Wyoming Water Quality Rules and Regulations, Chapter 1, Wyoming Surface Water Quality Standards, Section 23(a) include turbidity criteria for waters designated as fisheries and/or drinking water supplies. Any type of construction activity within such waters is likely to result in exceedances of these criteria. In accordance with Chapter 1, Section 23(c)(ii), the WQD administrator may authorize temporary increases in turbidity above the numeric criteria and may impose whatever controls, monitoring, and best management practices (BMPs) are necessary to maintain and protect all water uses. In circumstances where a project has the potential to exceed the turbidity criteria, a waiver is recommended. Applications must be submitted, and waivers must be approved by the WQD administrator before work begins. Additional information is available at <http://deq.wyoming.gov/wqd/cwa-section-401-turbidity-wetland/resources/turbidity/>.
- Wyoming Game and Fish Department (WYGFD), “Wildlife Protection Recommendations for Wind Energy Development in Wyoming” (November 2010)
- Wyoming State Historic Preservation Office (SHPO), NHPA Section 106 Consultation
- Wyoming State Engineer’s Office (SEO), water rights permitting
- Wyoming Department of Revenue, Wyoming taxes

1.3.5 Albany County Wind Energy Siting Requirements

Albany County’s wind energy siting regulations establish setbacks between wind turbines and municipalities, residences, and physical infrastructure. Albany County adopted the wind energy siting regulations for the purposes listed below (Albany County 2015:Chapter V, Section 12).

- a. To assure that any development and production of wind-generated electricity in Albany County is safe, effective, and that it will minimize impacts to wildlife.
- b. To acknowledge that these facilities are clearly visible and cannot be hidden from view, however, design consideration should include minimizing the degradation of the visual character of the area.
- c. To facilitate economic opportunities for local residents.
- d. To promote the supply of wind energy in support of Wyoming’s goal of increasing energy production from renewable energy sources.
- e. To be consistent with the Albany County Comprehensive Plan.

Specific setback requirements described in Albany County’s current wind energy siting regulations are outlined below in table 1-1.

Table 1-1. Albany County Wind Energy Siting Regulations

Feature	Setback Distance
Incorporated municipality	1 mile
Platted subdivision	5.5 times total turbine height ¹
Residential dwelling or occupied structure	5.5 times total turbine height
Highway right-of-way	0.25 mile
State parks and wildlife refuges	0.25 mile
Third-party transmission lines and communication towers	1.1 times total turbine height
Adjacent property lines of nonparticipating landowners	1.1 times total turbine height
Public roads and railroads	1.1 times total turbine height

Source: Albany County (2015).

¹ Total turbine height is measured from the base to the tip of the blade, not the top of the nacelle.

ConnectGen applied for a Commercial Wind Energy Conversion System Permit (WECS Permit) from Albany County, Wyoming, in March 2021 for the Project. This application includes specific Project details that fall within the parameters outlined in Chapter 2 below and evaluated in the analysis presented in Chapter 3. Albany County granted ConnectGen’s permit application on July 16, 2021. Project-specific conditions were applied with the approval of this permit (see section 2.2.6, “Environmental Protection Measures”), including increased setbacks from non-participating residences and public roads.

1.4 Cooperating Agencies

Cooperating agencies include those Federal, State, and local agencies that have jurisdiction by law and/or special expertise (40 CFR 1508.5). The role of cooperating agencies may include participating in the scoping process, developing information and environmental analysis at the request of the lead agency, and providing support staff to enhance the lead agency’s interdisciplinary capacity. WAPA sent letters to 12 agencies at the Federal, State, and local level inviting participation as a cooperating agency in preparation of the EIS. Seven agencies accepted invitations to participate: U.S. Environmental Protection Agency (EPA), Region 8; Wyoming Office of Governor Mark Gordon; WYDEQ; WYGFD; Wyoming SHPO; Wyoming State Parks, Historic Sites, and Trails; and Wyoming Office of State Lands and Investments. Chapter 5, “Consultation and Coordination,” includes a list of those agencies that were invited to participate as cooperating agencies.

1.5 Tribal Consultation

WAPA is conducting formal consultation with interested tribes on a government-to-government level, according to Section 106 of the NHPA as noted in section 5.2.2, “Government to Government and Section 106 Consultation.” WAPA has invited 16 federally recognized tribes to participate in the Section 106 consultation process. Invitation letters were sent on February 27 and September 8, 2020. Tribes that have accepted WAPA’s invitation are the Northern Cheyenne Tribe, Northern Arapaho Tribe, Standing Rock Sioux, Yankton Sioux Tribe, Rosebud Sioux Tribe, and the Ute Tribe of Uintah and Ouray Reservation. In addition, WAPA has had telephone conversations with the Northern Arapaho Tribe’s Tribal Historic Preservation Office and the Yankton Sioux Tribe’s Tribal Historic Preservation Office to discuss the Section 106 consultation process and address any questions or requests. Ten tribes have yet to respond, but consultation remains open to any tribe that wishes to participate. The Lower Brule Sioux Tribe has deferred consultation to the other tribes.

This page intentionally left blank.

CHAPTER 2. PROPOSED FEDERAL ACTION AND ALTERNATIVES, AND CONNECTGEN'S PROJECT DESCRIPTION

2.1 Western Area Power Administration's Proposed Federal Action

The proposed Federal action being considered by WAPA in this EIS is the interconnection request submitted by ConnectGen for the Project. FERC mandates require that interconnection requests be accommodated so long as capacity is available, operation of the power system would not be negatively affected, the applicant funds any necessary system upgrades, and existing power customers would not be impacted. WAPA can deny an interconnection request if any of these conditions are not met. If ConnectGen's interconnection request is approved, WAPA would construct, own, operate, and maintain an interconnection switchyard in the Project Area and could also require upgrades to WAPA's transmission system. These facilities are described below.

2.1.1 Interconnection Switchyard

A 345-kV interconnection switchyard would be required to connect the Project to the existing Ault-Craig 345-kV transmission line. WAPA would coordinate with ConnectGen on the final design and construction of the interconnection switchyard based on the findings of WAPA's facilities study. A typical 345-kV interconnection switchyard encompasses a fenced area of up to 8 acres. A switchyard typically includes breakers and switches that protect and control the flow of power onto the power system, in addition to a small control building.

WAPA would require ConnectGen to fund and construct the switchyard as well as fund completion of any other required system upgrades. Upon completion of the switchyard, WAPA would own, operate, and maintain the switchyard as part of WAPA's transmission system.

2.1.2 Transmission System Upgrades

Additional upgrades could be required to WAPA's transmission system, such as additional equipment installation at connecting substations. WAPA would require ConnectGen to fund completion of any other required system upgrades. These additional upgrades would be installed by WAPA. System upgrades would occur within existing fenced substation yards without the need for expansion or new disturbance.

The "System Impact Study 2019-G2" was completed in 2020 (WAPA 2020a) to determine what, if any, upgrades would be required to WAPA's transmission system (beyond the interconnection) to interconnect the Project. The study concluded that the full 504-MW Project can be interconnected without any further system upgrades. WAPA is currently completing a Facility Study to confirm what specific electrical equipment will be required at the interconnection switchyard.

2.1.3 No Action Alternative

Under the No Action Alternative, WAPA would not approve the interconnection request, and the Project would not be allowed to connect to WAPA's transmission system. While this would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system, for the purposes of analysis, this EIS assumes that in that case, the Project would not be built.

Rationale for this assumption includes that the nearest regional transmission lines that would not require a WAPA interconnection would instead require a much longer generation-tie line (gen-tie line), affecting the economics of the Project.

2.1.4 Proposed Federal Action Alternative Considerations

WAPA's Federal action to consider the interconnection request is limited to two distinct outcomes: either approve or deny the interconnection request as presented by ConnectGen. Based on this limitation, no additional alternatives beyond the proposed Federal action and the No Action Alternative have been included in this EIS.

The proposed Federal action to consider ConnectGen's interconnection request is distinct from ConnectGen's proposal to construct a wind energy project. WAPA's proposed Federal action is limited to consideration of the interconnection request submitted by ConnectGen and the required system upgrades. Although the Project is the impetus for the requested interconnection request and WAPA's need for Federal action, the Project is a connected action to WAPA's Federal action. WAPA is analyzing the potential environmental effects of ConnectGen's Project in this EIS to fully disclose the activities and associated impacts and to inform WAPA's Federal action (i.e., the decision on the interconnection request). ConnectGen's decision to construct the Project, however, could proceed regardless of WAPA's decision. In that situation, ConnectGen could seek other transmission opportunities. This scenario is not analyzed in this EIS because in that case there would be no Federal nexus and no WAPA proposed Federal action to address under NEPA.

As is typical with development of energy generation projects, final selection of turbine models has not been made at this time in the planning and permitting process. ConnectGen is considering a range of turbine models for the Project and has provided representative layouts to its Project to illustrate the potential differences that might occur depending on the wind turbine generator (WTG) model selected. ConnectGen will review a range of factors in selecting a turbine, such as anticipated technology advancements, costs, and availability from manufacturers for delivery if the interconnection request is approved. Final selection of the turbine model (and subsequent layout) would occur after the NEPA process is concluded and prior to construction.

The representative layouts do not constitute alternatives to WAPA's proposed Federal action. The EIS analysis process considered the representative layouts provided by comparing the impact indicators of each layout, or by disclosing the layout with the highest level of impact. Opportunities to lessen those impacts, regardless of layout, have been identified through design features or practices and give WAPA the required impact disclosure to make an informed and defensible decision on the interconnection request.

2.1.5 Agency-Preferred and Environmentally Preferred Alternatives

WAPA's agency-preferred alternative is the proposed Federal action to approve the interconnection request, thus fulfilling the Tariff. The environmentally preferred alternative would be the No Action Alternative, where WAPA would deny the interconnection request and ConnectGen's proposed Project would not be built.

2.2 ConnectGen's Rail Tie Wind Project

ConnectGen's Project is considered a connected action to the interconnection request. If the interconnection request is approved by WAPA, then ConnectGen could build the Project as described in the following sections. The analysis contained herein considers both WAPA's proposed Federal action

and ConnectGen’s Project when disclosing potential impacts. Potential WAPA resource impacts would be limited to the approximately 8-acre interconnection switchyard and its associated interconnection facilities.

The Project would be developed on private and State lands within the Project Area according to State and landowner agreements. The Project facilities described below would be sited and constructed away from, and with minimal access points along public roads. Project access roads, described in section 2.2.1.8, “Access Roads,” would generally be used for transport and travel within the Project Area. The ground disturbance required for construction and O&M of the Project are provided in table 2-1 and appendix A.

Table 2-1. Estimated Acres of Project Disturbance

Project Phase and Facility	Private (acres)	State (acres)	Total (acres)
Construction disturbance			
WAPA interconnection switchyard	9.7	0.0	9.7
Wind turbine generator	236.1	63.2	299.3
Electrical collection system	264.4	51.9	316.3
Electrical substations	14.2	0.0	14.2
345-kV electric gen-tie line	51.9	0.0	51.9
O&M facility	7.0	0.0	7.0
Meteorological equipment	2.8	0.0	2.8
Access roads	489.6	117.6	607.2
Crane paths	119.8	7.1	126.9
Construction laydown yards	30.1	0.0	30.1
Total construction disturbance	1,231.4	239.8	1,471.3
Operations disturbance			
WAPA interconnection switchyard	8.0	0.0	8.0
Wind turbine generator	7.6	2.1	9.7
Electrical substations	10.0	0.0	10.0
345-kV electric gen-tie line	10.6	0.0	10.6
O&M facility	5.0	0.0	5.0
Meteorological equipment	0.0	0.0	0.0
Access roads	114.0	26.8	140.8
Total operations disturbance	155.2	28.9	184.1

Source: ConnectGen (2020).

Note: Acreages derived from geospatial data provided with Project description and correspond to the representative layout with the highest level of disturbance (General Electric Company 3.0 MW turbine layout). Construction disturbance acreages include the total sum of construction and operation disturbance.

The disturbance estimates for the EIS were calculated using an analytic methodology based on individual facility dimensions represented in a geographic information system (GIS) as a representative Project layout. This approach accounts for locations where overlap between facilities would occur. The Rail Tie Wind Project Description (appendix A) includes calculated disturbance estimates by facility type, also based on individual facility dimensions but then multiplied by the number of expected facilities. This provides an accurate estimate of disturbance by facility type, but does not account for locations where facility types overlap one another. The EIS methodology used the same individual facility dimensions, but due to consideration of the overlap, results in a more accurate accounting of overall Project disturbance than that found in appendix A.

2.2.1 Wind Generation Project Facilities

The wind turbines would be arranged in collinear strings located within 1,000-foot-wide wind turbine siting corridors (figure 2-1). This corridor design approach provides flexibility in turbine placement during the design stage to avoid and minimize impacts to wetlands, waterbodies, cultural sites, and other environmentally sensitive areas, to the extent practicable. Access roads and electrical collection lines would also be located within these corridors where feasible to minimize the Project's overall footprint. For the portions of the Project where it is not feasible to locate access roads and electrical collection lines within the turbine siting corridors, 100-foot-wide and 50-foot-wide siting corridors (i.e., non-turbine siting corridors), respectively, have been identified in these areas (see figure 2-1). The precise locations of each turbine within the corridor would be based on the wind turbine model selected and on various siting criteria such as optimal wind speed, geotechnical conditions, and environmental considerations.

For construction planning and site optimization, the Project consists of two separate stages, each approximately 252 MW. These stages are defined as the East component and the West component, as differentiated by U.S. Highway 287 (U.S. 287). Construction of the Project would be expected to begin in 2022, and both stages could be fully operational by the end of 2023. As is common with large wind projects, the Project could require 2 years to fully construct. If additional time would be required for construction, it would be anticipated that the first 252-MW stage would be completed and fully operational by the end of 2023, with the second stage operational in 2024.

The Project would include the following components and equipment.

2.2.1.1 Wind Turbine Generators

Between 84 and 149 turbines would be included in the Project. The total number of wind turbines would depend on the turbine model selected and final design. ConnectGen is currently considering several turbine models with capacities between 3 MW and 6 MW each. Each turbine, with associated foundations and equipment, would have a permanent physical footprint of approximately 0.1 acre and a vertical height between 500 and 675 feet, depending on the turbine type selected.

Of the several turbine models being considered by ConnectGen, the smallest model would be the General Electric Company (GE) 3.0 MW, and the largest would be the Siemens Gamesa 6.0 MW or the Vestas 5.6 MW. The turbine specifications for each of these models are provided in table 2-2. As shown in the table, the specifications of the turbine models are similar, and thus many of the potential resource impacts associated with each turbine model would be similar. It is also expected that the specifications associated with a selected turbine model with a capacity between 3.0 MW and 6.0 MW would fall within the range of dimensions outlined in in table 2-2. Regardless of the turbine model selected, turbines would be sited within the 1,000-foot siting corridors depicted in figure 2-1 and appendix A.

The NEPA process began when ConnectGen was early in their engineering design. For this reason, the NEPA process was conducted to consider impacts from the range of turbine models being considered. ConnectGen is continuing to advance its design review of available turbine models, all of which have operating and physical characteristics that are within the minimum and maximum ranges of turbine models considered in the EIS. Therefore, no analyses updates in this final EIS specific to model type are necessary.

Table 2-2. Potential Turbine Specifications

Turbines	GE 3.0 MW	Vestas 5.6 MW	Siemens Gamesa 6.0 MW
Tower type	Tubular	Tubular	Tubular
Blade (rotor) diameter	417 feet (127 meters [m])	531 feet (162 m)	558 feet (170 m)
Hub height	292 feet (89 m)	410 feet (125 m)	377 feet (115 m)
Total turbine height	500 feet (152.5 m)	675 feet (206 m)	656 feet (200 m)

Source: ConnectGen (2020).

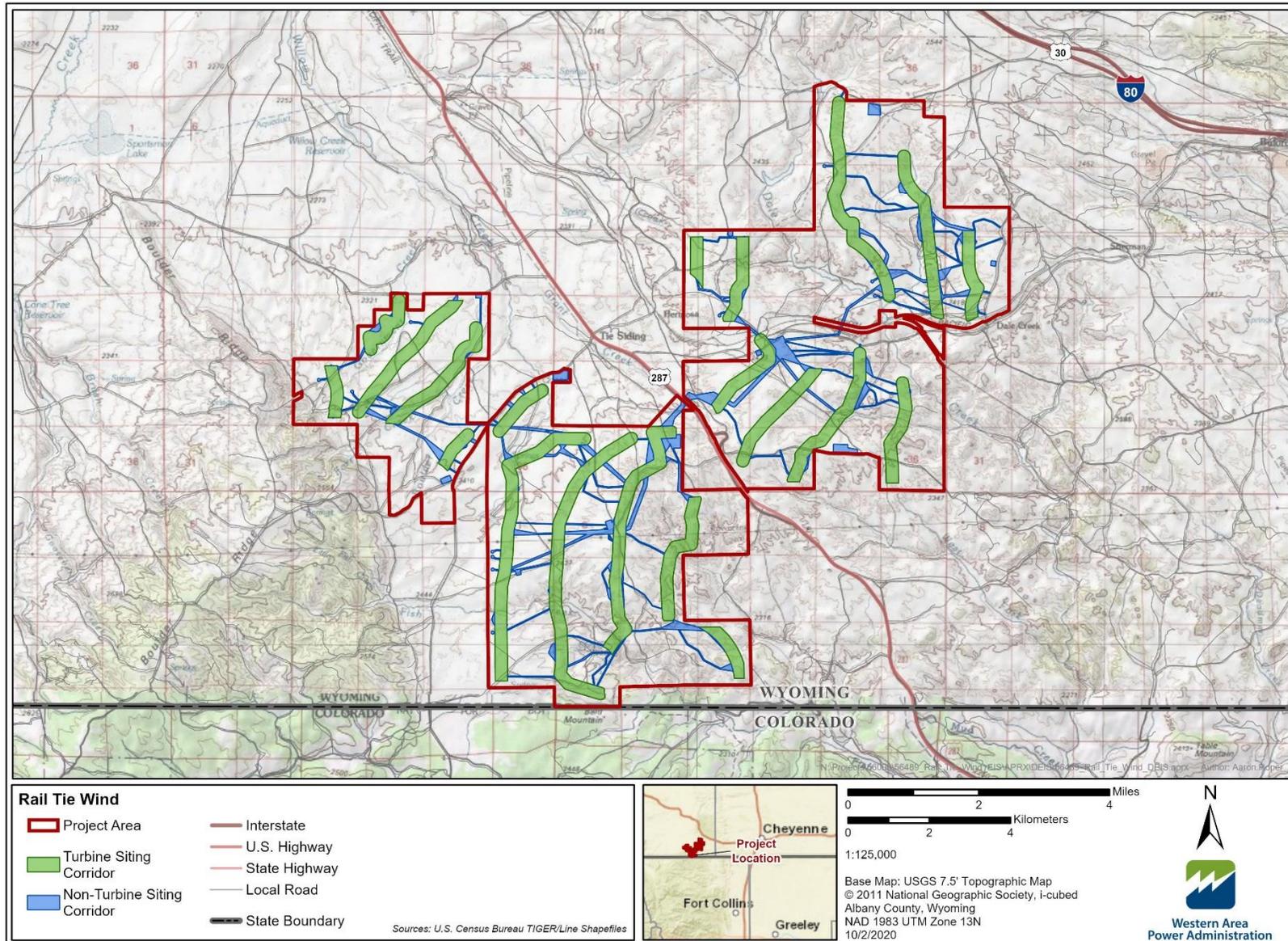


Figure 2-1. Project siting corridors.

2.2.1.2 Electrical Collection System

Underground collection lines would connect wind turbines and deliver power from each turbine to the Project substations. The same collection lines would also provide service power to the turbines when necessary (i.e., power flow would be bidirectional); the transformer in the turbine would step down the power to the appropriate voltage. If necessary, because of the geology or topography, overhead collection lines could be used in some areas. Underground collection typically entails 34.5-kV electric cable buried to a depth of approximately 48 inches, while overhead collection consists of 34.5-kV electric lines strung from vertical wooden monopoles typically 50 to 80 feet tall. The total length of collection would be determined based on the final design and siting of turbine arrays and substations but could include up to 80 miles of collection facilities.

2.2.1.3 Electrical Substations

The Project would include two 345-kV substations, one to connect generation facilities located east of U.S. 287 and one for facilities west of U.S. 287. Each substation site would encompass a fenced area of up to 5 acres and would contain one or two main power transformers, depending on the stage. The eastern substation would connect to WAPA's interconnection switchyard via the 345-kV overhead transmission line, and the western substation would be directly adjacent and connect to WAPA's interconnection switchyard via jumpers. Each substation would be connected to the local electrical utility via an overhead service line.

2.2.1.4 345-kV Electric Gen-Tie Line

Approximately 4 miles of new, single circuit, 345-kV overhead gen-tie lines would connect the eastern substation to WAPA's interconnection switchyard, crossing U.S. 287. The transmission line structures would be wood H-frame or steel monopoles, as determined based on final engineering and design of the transmission line. Structure height would range between 100 and 125 feet, depending on terrain.

2.2.1.5 Operations and Maintenance Facility

A single O&M facility is proposed for the Project. The O&M facility would include an approximately 7,000-square-foot building, complete with sanitary and electrical services, located within an approximately 5-acre security-fenced area. A permanent water well would be used to supply the O&M building. The O&M facility would be connected to the local electrical utility via an overhead service line.

2.2.1.6 Supervisory Control and Data Acquisition System

A Supervisory Control and Data Acquisition (SCADA) system would collect and integrate the operating data from each wind turbine and the Project substations. Additionally, the wind turbines could be operated remotely via the SCADA system or the O&M facility, and each individual turbine could also be operated from the computer terminal inside its tower. Fiber-optic cables for the SCADA system would be co-located with the low-voltage electrical collection system. The central SCADA computers would be located on-site within the O&M building. Data collected by the SCADA system would be monitored 24 hours per day, 7 days a week, 365 days a year at the off-site Remote Operations Center. The Project's SCADA system would also communicate with WAPA's communications system.

2.2.1.7 Meteorological Equipment

Three 344.5-foot-tall (105-meters [m]) meteorological (met) towers would be constructed for the Project. Met towers would be self-supported, lattice-mast style towers. ConnectGen has identified 12 potential met tower locations but would select the final locations upon selection of a turbine type and finalization of Project design.

2.2.1.8 Access Roads

ConnectGen would use public roads for deliveries and travel to the Project Area. For travel and transport within the Project Area, temporary and permanent access roads, including new, improved, or existing access roads, would be necessary for both construction and operations of the Project. New, permanent, all-weather access roads would be needed to access each wind turbine location during operations, and existing or improved public roadways could be used as well. For the portions of the Project where it is not feasible to locate access roads within the turbine siting corridors, 100-foot-wide access road siting corridors have been identified in these areas (see figure 2-1). Based on initial estimates, approximately 60 miles of new, all-weather access roads would be needed for the Project.

2.2.1.9 Crane Paths

Crane paths would be compacted ground used to “walk” the cranes to each turbine pad site during construction. Crane paths would generally be co-located with the access roads. In addition, there would be several dedicated crane paths that would be located cross-country in areas away from any permanent access road. Crane paths would be temporary and would be reclaimed once construction of the Project is complete.

2.2.1.10 Construction Laydown Yards

Two temporary laydown yards of approximately 15 acres each would be prepared and maintained concurrently during the construction period. Each of the laydown yards would be associated with construction activities that occur either east or west of U.S. 287 to minimize construction traffic use of local roads and construction traffic crossing U.S. 287. If necessary, additional smaller laydown yards of 2 acres each could be used throughout the Project Area. The laydown areas would consist of graveled storage and parking areas, which would be reclaimed to preexisting conditions, to the extent practicable, following completion of construction. Two concrete batch plants would be temporarily sited on-site, one located within each of the construction laydown yards. The Project would draw power from the local utility for these construction laydown yards. This includes an approximately 0.15-mile temporary distribution line extension to the western laydown yard, and a 1.8-mile temporary distribution line extension to the eastern laydown yard.

2.2.2 Construction Activities

During construction, ConnectGen intends to minimize environmental impacts resulting from the Project and maintain industry safety standards while managing cost and schedule. This approach would be realized by completing environmental resource studies to identify potential sensitivities and constraints to be considered during the siting and design stage and developing environmental protection measures (EPMs) to avoid, minimize, and mitigate impacts during the construction, operations, and decommissioning stages of the Project. ConnectGen has adopted certain EPMs to avoid, minimize, and mitigate impacts during the construction, operations, and decommissioning stages of the Project (see section 2.2.6, “Environmental Protection Measures”), including their commitment to fully implement the conditions of county and state permits. ConnectGen would follow construction best practices to reduce ground-disturbing activities, such as minimizing the cut and fill required for roads and foundations, and the use of as much excavated native soil and rock as possible. ConnectGen would also apply the concept of adaptive planning and design, which would minimize potential for significant adverse impacts to the natural characteristics of the site.

Before construction begins, each area of proposed ground disturbance would be inspected to evaluate existing conditions. To the extent possible, upon completion of construction activities, revegetation and reclamation would be conducted within disturbed areas to return the site to near preconstruction conditions. This effort would include activities such as conservation and reapplication of topsoil, seeding areas of bare soil, applying weed control measures, and returning land contours and drainage to preconstruction conditions.

A portion of the Project Area is located on State-owned land that is currently used for public recreation activities. ConnectGen would coordinate with the Wyoming State Land Office to limit public access to these areas when active construction is ongoing to ensure public and worker safety. Public access would be limited during activities such as wind turbine erection, foundation excavation, electrical collection system trenching, and substation construction and interconnection because public roads adjacent to these areas would be used to move equipment and Project components. ConnectGen would intend to keep public road closures to a minimum to the extent feasible. Disruptions to public road use in and adjacent to the Project Area could be associated with narrowing down the road to one lane of public traffic with flaggers used to direct the flow of traffic or suspending traffic for safe movement of large equipment. At any given location within the Project Area, construction would consist of a series of activities of relatively short duration separated by periods of no activity as workers move to other locations.

2.2.3 Construction Equipment

Table 2-3 and appendix A list the types of equipment that would be needed for Project construction, the purpose of each equipment type, and their anticipated numbers.

Table 2-3. Project Construction Equipment

Purpose or Stage of Construction	Equipment Type	Anticipated Amount of Equipment ¹
Road construction (2 crews)	Bulldozer	4
	Hoe and ram hoe	2
	Haul truck	15
	Grader	2
	Compactor	3
Foundation excavation (5 crews)	Hoe and ram hoe	4
	Air drill	2
	Bulldozer	2
	Compactor	2
Rebar (2 crews)	Picker	3
	Telehandler	2
Concrete placement (1 crew)	Belt truck	2
	Telehandler	2
	Concrete truck	12–18
Foundation backfill (3 crews)	Bulldozer	4
	Compactor	2
Wind turbine unloading (1 crew)	Crane	1
	Picker	2
	Telehandler	3
Wind turbine base installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6

Purpose or Stage of Construction	Equipment Type	Anticipated Amount of Equipment ¹
Wind turbine tower installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6
Wind turbine nacelle/rotor installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6
	Dozer	2
	Haul trucks	6
	Manlift	2
Collection system (1 crew)	Trencher	2
	Bulldozer	2
	Hoe	4
	Haul truck	2
	Cable truck/trailer	2
Substation (1 crew)	Drill truck	1
	Bulldozer	1
	Picker	1
	Hoe	2
	Bucket truck	2
	Pole truck	1
Miscellaneous (1 crew)	Picker	2
	Telehandler	4
	Water trucks	3–4
	Grader	1
Equipment service (1 crew)	Fuel/lube truck	1

Source: ConnectGen (2020).

¹ Totals reported are for the Project, not per crew.

Heavy vehicle traffic would be expected on the Project Area during construction. Dump trucks, for example, would be needed to move soil and aggregate. Concrete trucks would be needed for wind turbine foundations and other facilities. Water tankers would be needed to wet down roadways for dust control. The crane needed for wind turbine installation would be assembled at the first wind turbine site and then would be “walked” to subsequent wind turbine sites along the Project access roads. Where the road cannot be built within the tolerances required for walking the crane, the crane would be disassembled, moved to the next wind turbine site, and reassembled.

2.2.3.1 Roads and Turbine Pads Construction

For construction crews and equipment to reach each wind turbine location, all-weather access roads would be constructed, extended, and/or improved throughout the Project Area. Existing public roads would be used and/or improved to the extent possible. In addition, new Project access roads would need to be constructed, and existing private roads would need to be improved to provide access to turbine sites, the O&M building, and the Project’s substations. Access roads would be sited to reduce ground disturbance, minimize adverse impacts to sensitive resources (e.g., wetlands, cultural resources sites, sensitive habitat, etc.) and optimize transportation safety and efficiency during construction and maintenance activities. In general, new access roads would be sited within the 1,000-foot turbine siting corridors. For the portions of the Project where it is not possible to locate the access roads and electrical

collection lines within the turbine siting corridors, 100-foot-wide access road and 50-foot-wide collection line corridors have been established for the purposes of adaptive planning and design. Depending on the turbines selected, a maximum of approximately 60 miles of new access roads would be required.

Access roads would be needed during construction and operations to access the following permanent Project facilities: turbines, met towers, substations, and the O&M building.

Crane paths, which are compacted ground that is used to “walk” the cranes to each turbine pad site, would generally be co-located with the access roads. In addition, there would be several dedicated crane paths that would be located cross-country in areas away from any permanent access road. Crane paths would be temporary and would be reclaimed once construction of the Project is complete.

Extra-long trucks (for blade transport) and heavy-load trucks (for wind turbine nacelles) would bring wind turbine components to the site, as applicable. For these trucks to reach the site, some road improvements would be completed on existing State, county, and private roads. Specifically, turns in existing roads, such as Cherokee Park Road/County Road 31, would be widened to allow access for the extra-long trucks.

The design of the new access roads would consider the flow of the natural contours; however, modifications could be made to maintain safety during construction and maintenance activities. Table 2-4 and appendix A provide general road specifications.

Table 2-4. General Project Road Specifications

Characteristic	Specification
Maximum slope	8%–14% for access roads
Maximum width (construction)	Up to 100 feet, including crane path
Maximum width (postconstruction)	20 feet
Minimum turn radius	200 feet
Road surface	All-weather gravel
Speed limit	25 miles per hour

Source: ConnectGen (2020).

Construction zones of 250 feet by 300 feet would be established around each wind turbine site. This area would need to be clear and level enough to allow for the wind turbine components to be delivered and for a crane to be set up. Construction would be designed to minimize the amount of workspace required at each turbine site consistent with the work to be done and worker safety. To the extent practicable, a minimal amount of vegetation would be removed to allow for turbine component delivery. A crane pad measuring 65 feet by 100 feet (within the construction zone) would be graded to a level surface free of vegetation at each turbine location. These pads would be recontoured and revegetated to as near as practicable to preexisting conditions once construction of the turbine is complete.

Once the construction of the Project is complete, reclamation would be performed in areas disturbed by construction activities. The cut material accumulated during road construction would be used to return contours to preconstruction conditions, as practicable. Any remaining fill material would be used at other locations across the Project Area in a manner that would not contribute to dust and erosion, change drainage conditions, or impact any sensitive vegetative communities. Any exposed areas that are not covered by road materials would have topsoil stockpiles redistributed across them, and they would be revegetated using locally approved, weed-free, native seed mixes. Noxious weed control would continue on-site during the revegetation process and during the Project’s operational life.

2.2.3.2 Electrical Collection System Construction

Each wind turbine would be connected to underground electrical collection lines to allow the generated energy to be sent to the Project substations. These collection lines are anticipated to be buried directly (rather than placed in conduit) using cable specifically designed for this application. The trench for the alternating current collection is typically 24 inches wide. The voltage of this system would be up to 34.5 kV. Typically, the cables would be buried directly into native soil on-site. However, if the native soil does not provide enough thermal conductivity (i.e., to allow heat to dissipate from the cables), engineered backfill could be used. This engineered backfill would be a soil type capable of efficiently dissipating heat from the cables (e.g., compacted sand, fine gravel, stone dust, or crushed stone screenings). The engineered backfill would only be used in the cable trenches, and only in amounts needed to achieve heat dissipation from the cables. The engineered backfill would be weed and seed free. The remaining depth of the trenches would then be backfilled with native materials and recontoured to preconstruction conditions and revegetated with locally approved, weed-free, native seed mixes. ConnectGen could use blasting techniques in certain areas if rock strength exceeds typical excavation limits. If underground electrical lines are not technically or economically feasible in some areas, overhead electrical lines would be used. The overhead collection line structures would be wooden or steel monopoles and would be 50 to 80 feet tall. Depending on the turbine selected, approximately 80 miles of collection lines would be required.

To the extent possible, the electrical collection system would be co-located with access roads in areas already disturbed by the road construction. For areas near the substations where several runs of cable could be required, cable trenches could be placed on both sides of the road. In some areas, a collection line would be installed cross-country in areas not located next to existing or planned access roads. In these situations, the collection line would be installed in a manner as described above, and then recontoured to preconstruction conditions and revegetated with locally approved, weed-free, native seed mixes.

2.2.3.3 Wind Turbine Foundations Construction

The wind turbine foundation anchors the wind turbine structure securely to the ground. Typically, the construction of the wind turbine foundations constitutes the largest volume of earth excavation associated with a wind power project, although some foundation designs allow for much of the excavated material to be backfilled in and around the foundation itself. Depending on the turbine type selected, the Project would contain 84 to 149 turbine pads.

Two foundation designs are typically used for wind turbine installations in the United States; the specific foundation used for individual turbine locations would be determined by the soil conditions and wind turbine requirements. The first foundation type is a *mat* foundation. The second foundation type is a *pier* foundation. Mat foundations are wide and shallow, and pier foundations are narrow and deep. Mat foundations are typically 60 to 80 feet in diameter octagons with an approximate depth of 10 to 12 feet. Pier foundations are typically 15 to 18 feet in diameter with an approximate depth of 30 to 40 feet. There are variations on these foundations, and the exact foundation type to be used cannot be determined until a final turbine type is chosen and a detailed geotechnical investigation is completed. Because of the expected soil conditions in the Project Area, use of the mat foundation type is anticipated.

The turbine base consists of a steel ring and series of anchor bolt connections to fasten the wind turbine tower to the foundation. The turbine base is cast into the concrete reinforced structure that makes up the remainder of the foundation. An electrical grounding mat is typically cast in place when the foundation concrete is poured. The casting and the subsequent backfilling of the foundation is usually done prior to the delivery of the wind turbine components to allow the lowest sections of the wind turbine tower to be directly placed upon delivery.

2.2.3.4 Wind Turbine Installation

Installation of wind turbines requires specialized equipment and crews, and careful planning. During construction, turbine components would be delivered directly to each installation location as they arrive at the Project Area. Lower tower sections would be set in place immediately on the foundation, with the remaining components placed around the tower site in planned laydown arrangements. Crane crews would erect the turbines once components arrive at the turbine location to minimize the amount of time the equipment is on the ground. Exceptions could occur if components arrive before the turbine location is available (e.g., because of snow on the site or other temporal constraints that prevent construction from occurring at that time). In this instance, some components could be placed at a temporary laydown area until turbine site access and crews are available to move and erect the turbine.

2.2.3.5 Meteorological Tower Installation

ConnectGen would install three permanent met towers within the Project Area to collect accurate meteorological data, which are used to track the performance of the wind turbines. Such data would include wind speed and direction, barometric pressure, humidity, and ambient temperature. Each tower would be assembled on-site. Met towers would be self-supported, lattice-mast-style towers.

2.2.3.6 Substations Construction

The electrical collection system would deliver the power to one of the two Project substations. The Project substations would each be up to 5 acres in size. At the substation, the voltage of the energy would be stepped up from the collection system voltage of 34.5 kV to the transmission voltage of 345 kV. Capacitor banks and other equipment would be installed at each substation to provide the voltage support necessary to meet the interconnection requirements for the Project as determined by WAPA. A small control building would be built within each substation yard to house electrical metering equipment and the SCADA system for the wind turbines.

2.2.3.7 Gen-Tie Line Construction

Approximately 4 miles of new single circuit, 345-kV overhead gen-tie line would connect the eastern stage substation to the WAPA interconnection switchyard. The gen-tie line structures would be wood H-frame or steel monopoles, as determined by final engineering and design of the gen-tie line. Structure height would typically be 100 to 125 feet but could vary depending on terrain. The gen-tie line would be designed in consideration of Avian Power Line Interaction Committee (APLIC) guidance to avoid and minimize impacts to avian species.

2.2.3.8 Operations and Maintenance Building Construction

ConnectGen would construct an approximately 7,000 square foot O&M building in the Project Area. This building would house offices for Project staff, conference rooms, computers, telecommunications and control equipment for the wind turbines, SCADA equipment, emergency lodging quarters, storage for spare parts, and shop facilities. There would also be a graveled parking lot and storage area within a fenced, approximately 5-acre site. This building would be pre-engineered and assembled and finished on-site. The O&M building would be painted in an earth-tone color (such as light tan) to reduce visual impacts. The O&M building would also have an employee break room and bathrooms, and if connection to a sewer system is not feasible at the building site, a septic system would be installed. A supply of potable water for the O&M building would be provided through a connection to a nearby existing well or installation of a new well, as feasible.

2.2.3.9 Laydown Yards Construction

ConnectGen would develop two construction laydown yards of approximately 15 acres each where most general construction materials would be offloaded and stored. Five additional smaller laydown yards of approximately 2 acres each could be developed within the 1,000-foot turbine siting corridors, as necessary. In each 15-acre laydown yard, a 3-acre concrete batch plant would be installed with the capacity to produce up to 1,500 cubic yards of concrete daily.

The intent is for wind turbine components to be delivered directly to the pad site where they would be installed; although deliveries received before the turbine pads are available (either because of weather, road construction, or crew availability) would be off-loaded in the nearest laydown yard. Materials needed for the potential concrete batch plant, substation construction, or electrical collection system construction would be offloaded near the location of their intended use.

2.2.3.10 Commissioning and Acceptance Testing

Prior to Project operations, commissioning and testing would be conducted to ensure that all Project components are ready for operations. Trained technicians would test and inspect all wind turbine components, collection lines, substations, and communication systems to ensure they are working properly and safely. The wind turbines would be inspected and tested as they are completed. Substation testing would take place after main power transformer delivery and prior to energization. Interconnection switchyard testing would take place once Project construction is complete.

2.2.3.11 Construction Schedule

The exact schedule of construction has not yet been developed. It is dependent on completion of WAPA’s NEPA review and approval of an interconnection, and acquisition of all necessary permits for the Project. Other factors that could impact the construction schedule include weather-related construction constraints, the type and number of wind turbines ConnectGen elects to use, the required in-service date for the Project as determined by the interconnection agreement, and supplier delivery dates for turbines and components. In general, a typical schedule for the construction of wind energy projects of this scale is shown in table 2-5 and appendix A.

Table 2-5. Typical Construction Schedule of Wind Energy Projects

Activity	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mobilization	■											
Access roads and laydown areas		■	■	■	■	■						
Substation construction				■	■	■	■	■	■			
O&M building construction		■	■	■	■							
Collection system construction				■	■	■	■	■	■			
Gen-tie line construction							■	■	■	■		
Wind turbine foundations				■	■	■	■	■				
Wind turbine erection						■	■	■	■	■	■	
Commissioning and acceptance testing											■	■

Source: ConnectGen (2020).

Note: Schedule would vary with the number of turbines to be installed.

2.2.3.12 Water Use During Construction

Water would be required to batch the concrete required for turbine foundations and for building and equipment foundations at the substations, interconnection switchyard, meteorological sites, and the O&M building. In addition, water would be used for dust suppression on access roads and other disturbed areas. It is estimated that up to 200 acre-feet of water would be required per year of active construction. Water could be acquired from temporary water wells or hauled in from available water sources located nearby. Water use would comply with State and county permitting requirements.

2.2.4 Operations and Maintenance Activities

2.2.4.1 Operations

The following sections describe the activities that would be required to operate and maintain the Project after completion of the construction stage.

Project Administration

Project administration includes the business aspects of running a utility-scale wind power generation facility. Such activities include staffing the Project, training staff, scheduling and facilitating maintenance, monitoring the performance of the Project, and preparing necessary documentation that is required by Federal, State, and local agencies. Several of these activities are discussed in more detail below.

The O&M facility would be staffed during normal business hours, and staff would include a supervisor and approximately 20 Project maintenance staff.

Orientation and Training

ConnectGen would develop site-specific training materials for the operations phase that all employees on the Project would complete. It is assumed that ConnectGen would employ experienced operators and maintenance staff per specific job requirements. Training materials would address safe work procedures on wind turbines and the specific tasks necessary to provide scheduled and unscheduled wind turbine maintenance. In addition, site personnel would be trained on the environmental management and monitoring requirements of the Project.

ConnectGen would also develop a safety orientation program that site visitors must complete prior to going out on the Project. This orientation would also address the aspects of environmental management that could be impacted during visitors' on-site activities. Topics would include general site procedures for the following:

- Avoidance of wildlife
- Species identification, protection, and avoidance
- Cultural resources and fossil protection and reporting
- Requirements for control of livestock (e.g., ensuring gates are closed)
- Noxious weed reporting and control (e.g., vehicle washing)
- Excessive dust avoidance
- Noise requirements

- Motorized access limited to site access roads
- Speed limits on site access roads
- Hunting awareness
- Worker health and safety
- Other procedures as appropriate for their on-site activities

Wind Project Performance Monitoring

Wind turbines generally operate automatically without the need for centralized plant operators. Wind turbine performance would be monitored 24 hours a day, 7 days a week at the Remote Operations Center located off-site, and manual control would only be initiated as necessary for maintenance and troubleshooting.

ConnectGen would analyze the performance trends of the wind turbines and associated facilities to evaluate the overall efficiency of Project operations. This analysis would use data collected from the wind turbines and the permanent met towers. It is possible some scheduled maintenance activities would be added or adjusted to improve the performance of the Project based on the results of these analyses.

Necessary electric power would be provided to wind turbines to optimize the direction of the nacelle via a backfeed through the collector lines. Supporting infrastructure (e.g., power lines) would be necessary to provide the substations and O&M building with the ability to draw power from local utility distribution lines. This includes an approximately 0.4-mile permanent 12-kV line from the distribution line to the O&M building, and a 0.2-mile 12-kV line from the distribution line to the Project substation.

2.2.4.2 Maintenance Activities

As with any machinery, regularly scheduled preventive maintenance would help to ensure the safe and efficient long-term operation of the wind turbines. ConnectGen would develop the Project's O&M Plan, which would describe the scheduled minor and major maintenance activities and inspection requirements anticipated during the calendar year.

Staff periodically would analyze meteorological data and performance trends for the wind turbines and associated facilities to determine the overall efficiency of the operation. It is possible some scheduled maintenance activities would be added or adjusted to improve the performance of the operation. Staff would have specific training regarding safe work on wind turbines and the specific tasks necessary to provide both scheduled and unscheduled wind turbine maintenance.

Road maintenance would be performed on an as-needed basis. Regular snow removal would occur during the winter months to maintain access to the wind turbines, substations, and O&M building. Care would be taken in siting the O&M building to avoid contributing to snow drifting on Boulder Ridge Road. Grading and blading would be performed as required in the spring to remove vehicle ruts. Similar surface work could be needed after heavy rainfall or unusually heavy maintenance traffic. Culverts, drains, and other water management features would be kept clear to allow for natural water flows.

There could be times during the year when portions of the Project Area could not easily be accessed because of high winds, or heavy rain or snowstorms. A Health, Safety, Security, and Environment Plan would be developed for the Project to guide the staff's activities during these weather conditions.

Project Drive-By Inspections

Staff would drive the Project Area frequently to conduct a visual inspection of the operations, including wind turbines, road conditions, fencing, other infrastructure, and incidences of waste disposal or vandalism on or to Project infrastructure. The purpose of the inspections would be to identify obvious problems requiring maintenance or attention. Visual inspections would be a redundant check on the wind turbines. Each wind turbine would have internal sensors as part of the SCADA system to monitor its operating condition. Wind turbines requiring maintenance would be stopped remotely to allow the condition to be fixed.

Scheduled Facility Maintenance

Individual Project components, including the Project substations, would be inspected on a daily, weekly, monthly, or annual basis, as required by that equipment. The schedule would be part of the O&M Plan. Inspection results would be logged and used to plan future maintenance activities. Minor oil leaks, for example, would be promptly addressed to prevent a developing problem. Wind turbine maintenance events would be scheduled based on the manufacturer's specifications. They would be planned for the spring and summer each year, as practicable. Maintenance of the substation's transformers, switchgear, and buswork would require that the substation be de-energized, as applicable. Most scheduled substation maintenance activities could be performed during a single day each year. WAPA would perform switchyard maintenance activities similar to the substations discussed above.

Unscheduled Facility Maintenance

Unscheduled repair work could be either minor or major. Replacing faulty internal components on the wind turbines, for example, would be considered a minor repair done with small tools and the wind turbine's integrated winch system. Only a pickup or small truck would be needed to access the wind turbine using the existing Project access roads. Other potential, minor repairs include the following:

- Replacing wind turbine sensors
- Replacing small motors (e.g., for the yaw drive or fans)
- Replacing small pumps (e.g., for the hydraulic system or cooling system)
- Replacing gear oil
- Replacing coolant
- Replacing hydraulic fluid
- Replacing seals (e.g., on generators or gearboxes)

Major repairs would be far less common and could require a crane and heavy trucks. Typically, the crane pads used during construction would not be regraded, but only revegetated; in this case the vegetation would be cleared as necessary for crane operation. If the crane pad had been regraded to its original contours, grading could be necessary as well. The repair activity would be planned to minimize the crane's time on-site and the overall effects of the repair. Major repairs include the following:

- Replacing wind turbine blades
- Replacing a WTG
- Replacing a wind turbine gearbox
- Replacing a wind turbine transformer

The need to replace an entire wind turbine prior to decommissioning is extremely unlikely. If a wind turbine tower or foundation fails, replacement of the wind turbine would require that the wind turbine be removed in the reverse order in which it was installed. Components not used for the replacement wind turbine would be loaded onto trucks and removed from the site. The new wind turbine would be installed using the appropriate combination of original and replacement parts with the construction methods described previously.

2.2.4.3 Water Use During Operations and Maintenance

Water would be needed for standard O&M activities. The O&M building would require a potable water supply for bathroom and breakroom facilities, as well as for vehicle washing and general shop use. Turbine maintenance would also require water for washing. It is estimated that these activities would require up to 2 acre-feet of water per year. Water would be acquired through connection to an existing nearby well or from a new water well permitted through the Wyoming SEO. Water use would comply with State and county permitting requirements.

2.2.5 Decommissioning

ConnectGen estimates that the Project would have a 35-year life based on the useful life of the wind turbines. After that time, ConnectGen would evaluate the continued operations of the Project and either upgrade and repower the facility with renegotiated leases or decommission it.

The Wyoming Industrial Development Information and Siting Act requires that a site and facility reclamation and decommissioning plan be included in ConnectGen's application to obtain an Industrial Siting Permit from the State. This plan must indicate the planned life of the facility and the means by which the facility and its site would be decommissioned and reclaimed at the end of the facility's life. The Industrial Siting Permit would require reclamation bonding as a regular condition of approval. The plan must also comply with all requirements adopted by the ISC and, if the permit is granted, the plan shall be updated every 5 years until reclamation and decommissioning is complete.

The goal of decommissioning would be to remove the power generation equipment and return the site to a condition as close to its preconstruction state as possible. Major activities required for decommissioning would typically occur in reverse order to construction and are listed below:

- Wind turbine, wind turbine foundation, and met tower removal down to depth of at least 36 inches belowgrade. Concrete and steel would be hauled off-site and recycled as appropriate. The portion of the foundations removed would be filled with native weed-free fill and soils.
- Electrical collection system removal for aboveground structures and decommissioning in place for belowground cables. The salvage value of raw material could facilitate removal of belowground cables.
- Substation and switchyard removal, including equipment, control buildings, and foundations. Perimeter fencing and fence posts would be removed. Nonnative aggregate would be removed. Native soils would be replaced over the site.
- Sale or demolition of the O&M building. The on-site septic system and well (if a new water well is constructed) would be abandoned consistent with State and local requirements, unless needed for a future use of the site.
- Transmission line removal down to 36 inches belowgrade. Foundation holes would be filled with native weed-free soil.

- Road removal (as required by permit and/or site control agreements by landowners). Road disturbances would be regraded to original contours where cut and fill made recontouring feasible. Any roads left in place would become the responsibility of the landowner.
- Grading.
- Weed control, revegetation, and revegetation monitoring to ensure establishment of native vegetation.

The specific requirements and approach for each activity are estimates because the technologies and construction techniques available when the Project is decommissioned are expected to have changed from their current state.

2.2.5.1 Wind Turbine/Meteorological Tower Removal

The decommissioning activity most notable to the public would be the removal of the wind turbines and met towers. The disassembly and removal of this equipment would essentially be the same as their installation, but in reverse order.

Crane Movement and Assembly

When a large crane would first arrive onto the Project Area, it would be taken to the location for its first turbine removal. The crane would be assembled on that site, and then used to disassemble the wind turbine. Once the turbine at that site is disassembled, the crane would be walked to the next turbine site. If the requirements for walking the cranes cannot be met with the Project's roads, road improvements could be required. At locations where the road cannot be improved to within the tolerances for walking the crane, the crane would be disassembled, moved to the next site, and reassembled.

If the crane pads built for the construction of the Project are subsequently removed, or no longer meet the requirements for the crane, then temporary crane pads would need to be installed or improved for safe operation of the crane.

Wind Turbine/Meteorological Tower Disassembly

The large components that make up a wind turbine would be disassembled in the reverse order they were assembled. The rotor (hub and blades) would be removed from the nacelle and, with the help of a smaller crane, turned horizontally and set on the ground. Once the turbine rotor has been removed, a crew and small crane would disassemble it and separate the hub and three turbine blades for removal from the site. Next, the nacelle would be removed from the top of the tower, followed by each portion of the tower. The met tower would similarly be disassembled by a crane, starting with the upper tower sections and moving downward. The met tower sections would be disassembled on the ground into individual structural members for removal from the site. The met tower foundations would be removed to belowgrade as required in the lease agreements with the landowners.

Component Removal

The most efficient manner for component removal would be for each large component (other than the rotor) to be placed directly onto a truck's bed when it is removed from the turbine. These trucks could then immediately take the component off the site. This approach would limit the need for clearing an area around the turbine base to just enough area to set down the rotor.

When the rotor is disassembled, the blades would be placed into a carrying frame. The blades in the frame can then be loaded onto a truck for removal from the site. The hub can also be removed once it is disassembled from the blades.

2.2.5.2 Electrical System Removal

Buried Cable Removal

Between each of the turbine locations, there would be a buried electrical collector line cable and fiber optic cable. ConnectGen would discuss with the landowners whether to remove these cables or leave them in place at the time of decommissioning. Removing the cables would cause some environmental impacts that may need to be mitigated, but leaving them in place could impact future uses of the site.

If the cables are to be removed, a trench would be opened, and the cables would be pulled out. The cables would be cut into manageable sections and removed from the site. The trenches would then be backfilled with the removed material and compacted. The disturbed area would be revegetated with locally approved, weed-free, native seed mixes.

Substation Disassembly and Equipment Removal

Once the Project and gen-tie line is decommissioned, the substations would be disassembled. Major components would be removed from their foundations and placed onto trucks using a crane. The steel structures and control buildings would be disassembled and removed from the site. The fence would be taken down, and fence posts would be removed. Substation foundations would be removed to depth of 36 inches below ground surface. The gravel placed in the substation yards would be removed if it is not native rock. Native rock would be scattered on-site.

WAPA would require the removal of the switchyard foundation as described for the substation; however, the removal of the grounding grids would not be required.

Generation-Tie Line Removal

The gen-tie line would be disassembled and removed. Initially, the conductors and ground wires would be removed from the insulator strings and collected on reels for recycling. The structures would then be disassembled and removed, including grounding rods to 6 inches belowgrade. The areas around the poles, along with any access roads that were necessary, would be removed if they are not native rock. Native rock would be scattered and spread on-site.

2.2.5.3 Operations and Maintenance Building Removal

The O&M building would either need to be demolished and removed or sold. All equipment and furniture within the building, if demolished, would be removed. All debris from the demolition would be removed from the Project Area. Any installed septic system would also be abandoned in a manner consistent with State and local health regulations, unless retained by any new owner of the O&M building.

2.2.5.4 Structural Foundation Removal

When the wind turbines, met towers, and substation components are removed from their foundations, the foundations need to be removed per the requirements of the lease agreement. The concrete and steel in the foundations would be broken up and removed to a depth of at least 36 inches belowgrade. All concrete and steel debris would be removed from the site.

2.2.5.5 Decommissioned Facilities Disposal

Materials resulting from the decommissioning and removal of facilities would be recycled to the extent practicable, with the remainder disposed of at authorized and compatible landfill sites.

2.2.5.6 Civil Decommissioning Activities

Road Removal

When the Project is decommissioned, the landowners would have the choice as to whether the Project access roads were to be removed. If the roads are left, maintenance of the roads would become the responsibility of the landowner.

Once all the necessary equipment and materials have been removed from an area and the road to that area is no longer needed, it can be removed. The road surface and bed materials would be removed down to grade. Any materials native to the Project Area would be scattered across the site, and foreign materials removed.

Regrading and Revegetation

For areas where equipment or materials were removed, those areas would be regraded back to preconstruction contours, to the extent possible. Holes where foundations have been removed to 36 inches below grade would be refilled with native soils. Removed roads would be regraded to original contours if cuts and fills make such regrading practical. Crane pads would also be regraded.

Areas of disturbed ground would be revegetated using locally approved, weed-free, native seed mixes.

2.2.6 Environmental Protection Measures and Impact Minimization Measures

ConnectGen developed and would implement EPMs to avoid or minimize adverse effects on environmental resources from construction, O&M, and decommissioning of the Project (table 2-6). Certain areas would be designated as environmentally sensitive and actions would be taken to avoid or minimize effects on these areas. For example, environmentally sensitive areas include wetlands, certain waterbodies, cultural resources, and wildlife habitat. Project activities described herein would incorporate and be subject to the EPMs and requirements imposed as part of Federal, State, and local permits and authorizations. ConnectGen would comply with applicable Federal, State, and local laws, regulations, and ordinances related to environmental protection.

ConnectGen has also committed to FWS species-specific conservation measures that would be implemented within locations of Project construction disturbance identified as having suitable habitat for the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (see table 2-6). In addition, the Albany County Board of County Commissioners and the Wyoming ISC included impact minimization conditions as part of their respective Project approvals (see table 2-6).

Table 2-6. ConnectGen’s Environmental Protection Measures and Impact Minimization Measures

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
General (GEN)					
GEN-1	The Project will be designed, constructed, and operated in compliance with Albany County Zoning Regulations (as amended) and Albany County wind energy siting regulations (Albany County 2015). Construction and operations activities will comply with all Federal, State, and county environmental regulations, as applicable.	X	X	X	X
GEN-2	The Project will delineate environmentally sensitive areas (e.g., wetlands, waters, habitats) located within or adjacent to the Project Area and seek to avoid or minimize impacts to these areas during design and final siting. Environmentally sensitive areas will be identified in construction planning documents. Construction and operations personnel will be informed of the appropriate practices that may be applicable to avoid or minimize impacts when working in the vicinity of these areas.	X	X	X	X
GEN-3	Construction travel will be restricted to existing roads and permanent or temporary access roads identified in the final Project Site Plan.		X		
GEN-4	The Project will implement speed limits on construction and permanent access roads to minimize potential for fugitive dust, impacts to wildlife, and for safety purposes. Speed limit signs will be posted as appropriate.		X	X	X
GEN-5	Construction and operations equipment will be inspected periodically per the manufacturer’s specifications and maintained in good working condition.		X	X	X
GEN-6	Fences, gates, and other access controls (e.g., cattle guards) will be maintained in good working order during construction and operations activities. Damaged access controls will be repaired or replaced as soon as possible. Security guards or access attendants may be employed during the construction phase if needed.		X	X	X
GEN-7	Routine operations and maintenance activities will be scheduled and performed during daylight hours.			X	
GEN-8	Temporary sanitary facilities will be located in convenient locations throughout the site. Facilities will be located greater than 100 feet from any waterbody or wetland and will be regularly serviced and maintained.		X		X
Air Quality (AQ)					
AQ-1	A Fugitive Dust Control Plan will be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f).	X	X	X	X
AQ-2	All unpaved roads and disturbed areas where construction activities are occurring, including temporary laydown areas, will be treated with water or other surfactants as frequently as necessary to control fugitive dust. Wind erosion control techniques such as windbreaks, water, WYDEQ-approved chemical dust suppressants, and/or vegetation will be applied to soil disturbance areas that could potentially result in wind-blown soils.		X		X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
AQ-3	All construction equipment vehicle tires will be cleaned via track pad entrances as necessary to limit tracking of soil onto public roadways prior to leaving the construction site.		X		X
AQ-4	All vehicles that are used to transport solid bulk material on public roadways and have the potential to cause visible dust emissions on public roadways either will be covered or the materials sufficiently wetted in a manner to minimize fugitive dust emissions.		X	X	X
AQ-5	Idling equipment will be turned off when not in use.		X	X	X
AQ-6	Any stationary sources associated with construction or operations activities requiring WYDEQ–AQD permits or waivers will be controlled in accordance with relevant regulations and permit conditions.		X	X	X
Cultural Resources (CR)					
CR-1	An Unanticipated Discoveries Plan will be developed that describes procedures for responding to the discovery of archaeological or other cultural resources, including unmarked graves, during construction.	X	X		
CR-2	Conduct appropriate worker education concerning the recognition and protection of cultural resources for all on-site personnel.	X	X	X	X
CR-3	Conduct a new Class I records search for the Project and Class III cultural resources inventory for all work areas where ground disturbance may occur to comply with Section 106 of the NHPA. The Class III inventory should be performed subsequent to the draft EIS and after the Project design is finalized. The survey results will be shared with the Wyoming SHPO to identify and avoid resources eligible for the National Historic Register.	X			
CR-4	To the extent practicable, construction activities will avoid impacts to cultural resource sites that may be identified within the Project Area. Cultural resource sites and appropriate buffers will be delineated on construction drawings as restricted areas and will be flagged in the field with signage and/or temporary fencing to prevent unauthorized entry.		X		X
CR-5	Conduct a systematic architectural inventory of the Project Area and use setbacks to reduce impacts to historic architectural resources to the extent practicable.	X			
Hazardous Materials (HAZ)					
HAZ-1	Prior to commencing construction, a Hazard Communication Program will be developed to comply with OSHA requirements under the Hazard Communication Standard. Elements of the Hazard Communication Program include a hazard determination process, approval process, materials inventory system, and training for site personnel. At a minimum, hazardous materials will be properly labeled and stored and material safety data sheets will be available at the site.	X	X	X	X
HAZ-2	Care will be taken when selecting the location of hazardous materials storage areas within the site to avoid potentially sensitive areas.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
HAZ-3	In compliance with the EPA’s Spill Prevention, Control and Countermeasure Regulation, secondary containment for hazardous (oil-containing) materials that are stored on-site will be provided to minimize potential effects to the surrounding environment. Examples of secondary containment are concrete bermed areas and manufactured containment pallets.		X	X	X
HAZ-4	Concrete washout would only be disposed of in properly designed concrete washout facilities.		X		
HAZ-5	A Spill Prevention Control and Countermeasure Plan (SPCC Plan) will be prepared per local, State, and Federal regulations and will be on-site during construction, operations, and maintenance. The SPCC Plan will define procedures for storage, cleanup, and disposal of petroleum-based products. The SPCC Plan will identify the types of equipment and materials that will be maintained on-site to facilitate a cleanup in the event of a spill. Construction and operations personnel will be trained to recognize and respond to accidental releases or spills in compliance with the SPCC Plan. Regularly scheduled training modules will be provided to ensure prevention and preparedness throughout the life of the Project.		X	X	X
HAZ-6	All refuse, wastes, or hazardous materials will be handled, processed, treated, stored, and properly disposed of in accordance with Federal, State, and local regulations.		X	X	X
HAZ-7	Should previously unknown hazardous materials such as contaminated soils be encountered within the site during construction, operations and maintenance, or decommissioning, the materials will be characterized and the appropriate agency will be informed.		X	X	X
Public Health and Safety (PHS)					
PHS-1	All site personnel, regardless of job responsibilities, will receive Project orientation, including environmental and health and safety Project procedures, requirements, and site rules.		X	X	X
PHS-2	Rail Tie will coordinate with local emergency services, including the Tie Siding Volunteer Fire Department personnel and Laramie Fire Department in development of response or evacuation plans and procedures. Rail Tie personnel will continue routine coordination with local emergency services throughout the life of the Project.	X	X	X	X
PHS-3	Fueling of vehicles will be conducted in accordance with procedures that will minimize the risk of fires and spills.		X	X	X
PHS-4	Selected Rail Tie personnel and construction crew leads will be trained in first aid, automated external defibrillator operation, and CPR. Adequate materials and resources for on-site treatment, first aid, and stabilization will be available at all times.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
PHS-5	A Health, Safety, Security and Environment (HSSE) Plan will be prepared for worker protection, as required by OSHA, with emphasis on safety and health regulations for construction and operations and maintenance. All employees would be required to conform to safety procedures and to receive appropriate training for their job responsibilities. The HSSE Plan will include requirements for first aid and other emergency medical material to be stored on-site and in maintenance vehicles.		X	X	
PHS-6	Construction equipment will be outfitted with OSHA-required safety devices. Hard hats, safety boots, ear and eye protective equipment, and other safety equipment will be used on the construction site.		X		
PHS-7	Wind turbines will be operated in conformance with the manufacturer’s operational parameters.			X	
PHS-8	Staff will perform routine inspections of the Project facilities, including wind turbines, roads, fencing, and other infrastructure, and will identify any incidences of waste disposal, theft, or vandalism.			X	
PHS-9	Chain-link security fencing will be installed at the substation and switchyard, and at the outdoor storage area adjacent to the operations and maintenance building to prevent unauthorized entry.		X	X	
PHS-10	During construction, temporary plastic mesh fencing will be installed to protect public and worker safety near excavated wind turbine foundations, electrical collection system trenches, material laydown areas, or any other areas deemed hazardous. Open holes and trenches without fencing will be covered or fenced to deter wildlife and livestock from becoming trapped or injured.		X		
PHS-11	The general public will not be permitted access to the Project facilities. Most private property within the Project area is fenced off. If trespassers are identified on privately owned land, they will be escorted off the property. Some of the property that the Project will be constructed on is State-owned land that is open to the public. The Project will coordinate with the State land office to identify appropriate temporal or spatial access restrictions during construction and operation periods.		X	X	X
PHS-12	The Project will post any roads it constructs as being private roads only for use by authorized personnel in connection with Project operations.		X	X	X
PHS-13	An Emergency Response Plan will be prepared in coordination with Albany County emergency services to ensure that policies and procedures are consistent with those already established for the county.	X			
PHS-14	Wildfire Mitigation Measures will be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and will be incorporated in the Project’s Emergency Response Plan.	X			
PHS-15	On-site personnel will routinely inspect the wind Project facilities for fire hazards.			X	
PHS-16	Wind turbines will be outfitted with lightning protection systems that will reduce the chance of fires igniting from lightning strikes.		X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
PHS-17	The base of each turbine will be surrounded by a nonflammable, aggregate-based turbine pad. The turbine pad will be regularly inspected, maintained, and treated to prevent vegetative growth that could result in a fire hazard.			X	
PHS-18	All construction and maintenance vehicles will be equipped with fire extinguishers in the event of an equipment fire. Should an on-site fire occur, Project personnel will call 911 to alert the Laramie Fire Department and Tie Siding Volunteer Fire Department.		X	X	X
PHS-19	Fire suppression equipment, including a trailer-mounted tank of 500 gallons or more capacity with a gasoline powered pump, shall be maintained in the Project Area at all times during construction and operations.		X	X	X
Noise					
NOISE-1	Construction vehicles and equipment will be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers and engine enclosures).		X		X
NOISE-2	Construction and hauling equipment will be maintained adequately and equipped with appropriate mufflers.		X		X
NOISE-3	Blasting or hydraulic hammering will be limited to daylight hours.		X		X
Geology and Soils (GEO)					
GEO-1	Temporary ground disturbance activities will be limited to the minimum amount necessary in order to safely construct project facilities.		X		
GEO-2	Ground disturbance activities in areas of highly erodible soils and steep slopes will be avoided to the extent practicable.		X		
GEO-3	Roads will be designed to follow existing contours and to avoid steep slopes that would require extensive cut and fill construction.	X			
GEO-4	Soils excavated from the turbine pads will be segregated into separate stockpiles for topsoil and subsoil. Subsoil will be used primarily as backfill while topsoil will be spread as the topmost layer of soil to support revegetation. Any unused soils or excavated rock will be removed from the site or disposed of in coordination with the landowner.		X		
GEO-5	An Erosion Control Plan (ECP) will be developed to identify areas of potentially higher erodibility due to excavation, grading, or ground disturbance. The ECP will define appropriate erosion control measures that may be implemented during and after construction.		X		
GEO-6	Erosion control measures will be periodically inspected, and as required after precipitation events. Erosion control measures will be repaired or replaced, as necessary.		X	X	X
GEO-7	As soon as practicable following completion of ground disturbance activities, areas of temporary ground disturbance will be regraded and recontoured to blend with the natural terrain while maintaining existing drainage patterns.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
GEO-8	All private landowner’s existing drainage and erosion control structures such as diversions, irrigation ditches and tile lines shall be avoided by the Project, or in the alternative, appropriate measures are to be taken to maintain the design and effectiveness of the existing structures. Any structures disturbed during construction shall be repaired to as close to original condition as possible, as soon as possible.		X		
Paleontological Resources (PALEO)					
PALEO-1	Prior to construction, a pedestrian survey will be conducted by a qualified professional paleontologist in areas of high potential for fossil occurrence where ground disturbance activities are proposed to occur.	X			
PALEO-2	A Paleontological Unanticipated Discoveries and Mitigation Plan will be prepared that outlines appropriate actions in the event of an unanticipated discovery of fossils, including sampling investigation and reporting, and if needed, museum storage coordination for any specimen or data recovered.	X	X		
PALEO-3	Construction personnel involved with earthmoving activities will be informed of the possibility of encountering fossils, how to recognize fossils, and proper notification procedures. This worker training will be prepared by a qualified paleontologist and will be presented to all construction personnel during orientation.	X	X		
PALEO-4	If fossils are discovered in an active construction area, work would be stopped at that location and the construction project manager would be immediately notified.		X		
Recreation (REC)					
REC-1	City officials in Laramie and Fort Collins, and private campgrounds or mobile home park owners, will be coordinated with to identify facilities that are available to construction workers in order to avoid displacement of public recreational use at private campgrounds.	X	X		
REC-2	Recreational activities, such as hunting, may be restricted temporarily during construction for the safety of workers and recreationists; however, following construction, recreational activities may continue in conformance with the property lease agreements and/or land use regulations.		X	X	X
REC-3	To the extent practicable, construction and maintenance traffic will be limited to minimize disruption of normal land use and recreation activities.		X	X	X
Transportation (TRANS)					
TRANS-1	Rail Tie will coordinate with WYDOT and Albany County to implement a Transportation and Traffic Management Plan that minimizes risks and inconvenience to the public, while ensuring safe and efficient construction of the Project. The plan will focus on turbine component deliveries, traffic, and circulation primarily within and in the vicinity of the Project Area. It will be designed to minimize potential hazards from increased truck traffic and worker traffic and to minimize impacts to traffic flow in the vicinity of the Project.	X	X		

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
TRANS-2	To minimize conflicts between Project traffic and background traffic, deliveries of project components will be scheduled around local volume peaks to the extent feasible.		X		
TRANS-3	Road clearances may include temporarily blocking road intersections via construction cones and/or staffing blocked intersections with a traffic-control flagger to allow haul trucks sole access to the road while delivering Project components. If required, public road closures are not expected to exceed 15 minutes during each/any road closure event.		X		X
TRANS-4	The Project will coordinate with WYDOT to determine whether temporary speed limit reductions during construction are applicable where Project access points intersect with U.S. 287.	X	X		
TRANS-5	Construction deliveries would be coordinated to avoid major traffic-generating events in Laramie, including on the University of Wyoming campus, to the extent practicable.		X		
TRANS-6	The Project would coordinate with local law enforcement to manage traffic flows and monitor traffic speed during deliveries.		X		X
TRANS-7	All staging activities and parking of equipment and vehicles would occur within the Project Area and would not occur on maintained Albany County roads.		X		
TRANS-8	Equipment and material deliveries to the site would be performed by professional transportation companies familiar with the type of equipment, loads involved, and U.S. DOT, WYDOT, and Albany County regulations.		X		X
TRANS-9	Road signs would be erected to notify travelers and local residents that construction is occurring in the area and provide information regarding the timing and route for oversized vehicle movements and deliveries. The erection/placement of road signs and the Project construction activities would be performed in accordance with the Albany County Zoning Resolution (Albany County 2015) and coordinated with the Albany County Road and Bridge Department and WYDOT.		X		
Vegetation (VEG)					
VEG-1	A Reclamation Plan will be prepared prior to the onset of construction that will guide the revegetation of disturbed areas during and after the construction process.	X	X		
VEG-2	Revegetation will be implemented for all areas temporarily disturbed by construction or decommissioning of the facility in conformance with landowner agreements and in compliance with State and/or Federal permitting requirements. Temporarily disturbed areas will be revegetated as soon as practicable, either through natural revegetation practices or through the use of reseeding. If reseeding is required, plant species native to the affected ecosystems will be utilized.		X		X
VEG-3	The Reclamation Plan will identify locally approved, weed-free seed mixtures that prioritize plant species native to the ecosystems affected by site construction.	X	X		

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
VEG-4	The Project will develop and implement an Integrated Weed Management Plan that identifies appropriate controls to avoid, minimize, or treat the spread of noxious weeds directly resulting from construction, operations, and decommissioning.	X	X	X	X
VEG-5	The Project will perform a preconstruction survey of the project footprint to identify existing locations of noxious weeds. Any locations delineated will be identified in the Weed Management Plan, and appropriate controls will be applied to Project activities in these areas.	X			
VEG-6	Upon completion of construction, a postconstruction weed inventory survey will be performed to validate the effectiveness of the weed management program and ensure that invasive weed levels have not exceeded preconstruction levels.		X	X	
VEG-7	The Project will coordinate with the weed management contractor and host landowners regarding specific treatment methods on their respective properties.	X			
VEG-8	Any herbicide use as part of vegetation management activities will follow label instructions and relevant Federal, State, and local laws.		X	X	X
Visual Resources (VIS)					
VIS-1	Collection lines will be buried and co-located with access roads to the extent practicable.	X	X		
VIS-2	The operations and maintenance building will be designed with rural and agricultural architectural elements to minimize contrast with existing structures. The building will be painted with earth-tone colors identified in the Bureau of Land Management (BLM) Standard Environmental Colors palette or as required by Albany County to reduce visual contrasts from color.	X	X	X	
VIS-3	Outdoor facility lighting will be designed with light caps and/or directed downward to minimize off-site glare.	X	X	X	
VIS-4	Turbine components will be painted with a light, nonreflective white color in accordance with the Albany County Wind Siting Regulations (Albany County 2015).	X	X	X	
VIS-5	The Project will follow Federal Aviation Administration (FAA) Obstruction Marking and Lighting requirements as defined by Advisory Circular No 70/7460-1L and will coordinate with the FAA on the feasibility of Aircraft Detection Lighting System (ADLS) to reduce the potential impact of nighttime lighting.	X	X	X	
Water Quality (WQ)					
WQ-1	The Project will identify, avoid, and/or minimize adverse effects to wetlands and waterbodies.	X	X	X	X
WQ-2	Woody vegetation in potentially disturbed wetlands will be cut at ground level to leave the root systems intact and encourage sprouting of the existing species following construction.		X		
WQ-3	Equipment operation in or directly adjacent to wetlands or waterbodies will be kept to the minimum necessary to safely perform the work. Prefabricated equipment matting will be used to avoid rutting, soil compaction, and other ground disturbance where temporary work areas occur in wetlands or waterbodies.		X		X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
WQ-4	Wetland and aquatic resource boundaries will be clearly identified on all construction plans and will be posted with signs and flagging in the field.		X		X
WQ-5	Appropriate permits will be secured should any fill or dredge activities in wetlands or other waters of the United States (WOTUS) be required.	X	X	X	X
WQ-5	No parking or servicing of construction-related vehicles will occur within any wetland boundary.		X	X	X
WQ-6	Erosion control barriers and other measures, such as silt fencing, fiber logs, and/or hay bales will be placed immediately upgradient of wetlands and waterbodies to minimize sediment transport and deposition.		X		X
WQ-7	Access roads will be designed and constructed to minimize disruption of natural drainage patterns, including perennial, intermittent, and ephemeral streams.	X	X		
WQ-8	A Stormwater Pollution Prevention Plan (SWPPP) outlining specific erosion control measures will be prepared, and its requirements will be implemented on-site for the proposed Project. The SWPPP will comply with EPA and WYDEQ requirements.	X	X		X
WQ-9	Construction activities shall be performed using methods that prevent entrance or accidental spillage of solid matter, contaminant debris, and other objectionable pollutants and wastes into flowing streams or dry watercourses, lakes, and underground water sources.		X		
WQ-10	Borrow pits, if required, shall be excavated so that the water will not collect and stand therein. Upon completion of construction, the sides of borrow pits will be brought to stable slopes, with slope intersections shaped to carry the natural contour of adjacent, undisturbed terrain into the pit or borrow area, giving a natural appearance.		X		
WQ-11	Waterbody crossings would incorporate WYGFD design specifications and professional engineering standards, as applicable. Open-bottom culverts will be used where appropriate to avoid changing stream morphology or removing suitable fish habitat. In addition, such waterbody crossings and culverts would be constructed in a manner that prevents sediment erosion, deposition of sediment, and minimizes impacts to any environmentally sensitive areas.	X	X	X	
WQ-12	Excavated material or other construction materials will not be stockpiled or deposited on or near stream banks, pond shorelines, or other watercourse perimeters where they can be washed away by storm runoff or can, in any way, encroach upon the actual waterbody itself.		X		
WQ-13	Water quality best management practices (BMPs) would be implemented at waterbody crossings to minimize any unforeseen impacts to the Platte River system's watershed and associated vegetation communities.		X		X
WQ-14	If new groundwater wells are required for construction or operations, the Project will coordinate with the WY State Engineer's Office to ensure withdrawal volumes will not adversely affect supplies for other uses.	X	X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
Wildlife (WL)					
WL-1	Initial vegetation clearing would be performed during the non-breeding season for birds (September 1 through April 15) if feasible. If vegetation clearing cannot occur during the non-breeding season, surveys will be performed in breeding bird habitat to identify avian nesting activity within the Project Area. Nest sites would be avoided until determined to be inactive.	X	X		
WL-2	The Project will develop and implement a Bird and Bat Conservation Strategy to avoid and reduce potential impacts to nonlisted bird and bat species that may result from the operations of the Project.	X	X	X	
WL-3	The Project will develop and implement eagle conservation practices and seek to avoid the unintentional take of eagles at wind energy facilities.	X	X	X	
WL-4	In consideration of the FWS' "Land Based Wind Energy Guidelines" (2012), the Project will perform postconstruction mortality surveys to calculate the fatality rate of birds and bats.			X	
WL-5	All trash and refuse will be disposed of in designated, covered waste receptacles and regularly removed from the site in order to avoid attracting scavengers.		X	X	X
WL-6	The overhead power to ground wire (OPGW) wires associated with the Project 345-kV gen-tie line will be marked with bird flight diverters consistent with methods suggested in the Avian Power Line Interaction Committee's "Reducing Avian Collisions with Power Lines" (2012).		X		
WL-7	If overhead collection lines are included in the Project's final design, the electric lines will be designed to incorporate appropriate spacing of energized parts to avoid or reduce the potential for electrocution risk to large birds, specifically raptors. The Project's design would consider the Avian Power Line Interaction Committee's "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006" and "Reducing Avian Collisions with Power Lines: The State of the Art in 2012."	X			
WL-8	The Project will notify the FWS within 24 hours of federally listed species or eagle mortality documented on the Project site.		X	X	
WL-9	The Project established a 1-mile spatial buffer around known, occupied eagle nests identified during the 2019 and 2020 raptor nest surveys. The area within the 1-mile buffers was excluded from the Project Siting Corridor, therefore WTGs would be setback a minimum 1-mile from the identified eagle nests. If future nest surveys identify additional occupied eagle nests, the Project will coordinate with the FWS to identify appropriate nest-specific avoidance or minimization measures.	X			

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
WL-10	To the extent practicable, herptile habitats for Species of Greatest Conservation Need, such as fallen trees, prairie dog colonies, and potential basking rocks, will be left intact.		X	X	X
WL-11	Construction activities will be avoided between Nov 15 – April 30 in areas of Mule Deer Crucial Winter Range.		X		X
Wyoming Industrial Development Information and Siting Act Permit Conditions of Approval¹					
ISC Condition #1	Permittee shall obtain and maintain all required State and local permits and approvals in accordance with W.S. 35-12-109(a)(xv), 35-12-113(a)(i), and 35-12-115 during the term of this permit.		X	X	X
ISC Condition #2	Permittee shall commence to construct within three years following the date of the award of this permit.		X		
ISC Condition #3	Before engaging in any activity over which the ISC has jurisdiction which could significantly affect the environment external to Permittee’s permit area, or the social, or economic, or environmental conditions of the area of site influence and which was not evaluated in the permit process, the Permittee shall prepare and file an evaluation of such activity with the Industrial Siting Division (ISD). When in the opinion of the Director of the Department of Environmental Quality (Director), the evaluation indicates that such activity may result in significant adverse impacts that were not considered in the permit, the Permittee shall file a permit amendment in accordance with W. S. 35-12-106.		X		X
ISC Condition #4	The Permittee shall develop a written compliance plan and program to ensure compliance with voluntary commitments of this Permit, testimony, agreements with local governments, and these permit conditions. A compliance coordinator shall be designated and identified to the ISD prior to the onset of construction. This individual shall present himself/herself and meet with the ISD staff before construction commences and review the permit requirements with the ISD staff. This coordinator shall assume the responsibility for assuring that contractors and subcontractors are aware of and enable the Permittee to meet all permit requirements.		X		

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
ISC Condition #5	<p>The ISC may review any adverse social, economic, or environmental impacts either within or outside the area primarily affected that are attributed to the Permittee:</p> <ul style="list-style-type: none"> a. Which adversely affect the current level of facilities or services provided by the local community. b. Which cannot be alleviated by financing through ordinary sources of revenue, given due consideration to bonding history and capacity of the jurisdiction involved. c. Which were not evaluated or foreseen at the time the permit was granted and can be attributed in whole or in part to the permitted facility; or d. Which are not or cannot be resolved by voluntary measures by industrial representatives in the community, <p>Then by order issued in accordance with the Wyoming Administrative Procedures Act, the ISC may require additional mitigation by the Permittee in cooperation with other basic industries (existing and future) provided that:</p> <ul style="list-style-type: none"> a. A local government has requested mitigation assistance; and b. Such adverse impacts were determined to be a result of the activities of the Permittee. <p>Permittee shall be required to assist in mitigating any impacts that result from construction or operation of the Facility, including those resulting from direct and indirect employment. For purposes of determining additional mitigation measures by the Permittee, consideration shall be given to previous mitigation efforts. However, in any event, Permittee shall not be required to provide mitigation in excess of the proportion that the Permittee's activities are contributing to the total impacts within the impacted area (as defined by W. S. 35-12-102).</p>		X	X	
ISC Condition #6	The Permittee shall give written notice to the ISD when construction commences.		X		
ISC Condition #7	The Permittee shall give written notice to the ISD when the physical components of the Facility are 90 percent complete.		X		
ISC Condition #8	<p>As a means of adhering to W.S. 35-12-109(a)(xviii) to provide preference for local and resident hiring, the Permittee, contractors, and subcontractors shall follow these hiring guidelines:</p> <ul style="list-style-type: none"> a) Procedures to foster local hiring shall be incorporated into the compliance plan. b) Job postings shall be filed with the local Workforce Center. 		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
ISC Condition #9	<p>The Permittee shall submit an annual report to the ISC for the years or portion of a year that includes construction and again for the first year of operation of the facility for each phase. The annual report shall include:</p> <ul style="list-style-type: none"> a) Efforts to assure compliance with voluntary commitments, mitigation agreements with local governments, and conditions contained in this permit; b) The extent to which construction has been completed in accordance with the approved schedule; c) Any revised time schedules or time tables for construction, operations, and reclamation and a brief summary of the construction, reclamation, and other activities that will occur in the next one-year period; and d) Demonstration of compliance with permit conditions. 		X	X	
ISC Condition #10	<p>In order that the ISD may monitor Permittee’s performance, the Permittee shall institute the following monitoring program that shall be recorded on a monthly basis and reported to the ISD on a quarterly basis through the construction period of each phase and for the first year of operation. Monthly data will be in a form prescribed by ISD and shall include:</p> <ul style="list-style-type: none"> a) The average and peak number of employees for the Permittee, contractors and subcontractors. b) Employee city and state of residency at the time of hire and the employee city and state while employed and type of residence while employed. c) The number of new students enrolled by grade level and school district who are related to Permittee employees, identified as either local (no change of residence) and in-migrants. d) Wyoming resident versus non-resident mix of workforce. e) An updated construction schedule as shown on page 3-1 of the Application. 		X	X	
ISC Condition #11	<p>The Permittee shall notify the ISD in advance of proposed changes to the scope, purpose, size, or schedule of the Facility. The Director may authorize such changes if he or she finds that:</p> <ul style="list-style-type: none"> a) The change should not result in any significant adverse environmental, social, and economic impacts in the area of site influence; and b) No party nor Council Member has requested that the matter be heard before the Council in accordance with the permit procedures of W. S. 35-12-106(c) and (d). <p>The Director will provide public notice of the proposed change and his or her intent to approve the request.</p>		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
ISC Condition #12	The Permittee will notify the ISD in advance and provide updates to the On Site Construction Workforce Schedule, FIGURE 3-1 on page 3-3 and TABLE 3-2 on page 3-5 of the Application, and all other pages of the Application where changes are expected to occur if: a) Actual on-site workforce during construction is expected to exceed the peak number estimated in the Application by more than fifteen percent (15%); b) The Permittee wishes to make changes to the lodging plan as described in the Application. The Director may authorize such changes or refer the matter to the Siting Council.		X		
ISC Condition #13	As may be subsequently required by the Director, the Permittee shall pay a fee based on the estimated costs to prepare, schedule, and conduct a special hearing or meeting of the Council to remedy any action or inaction by the Permittee. Unused fees shall be refunded to the Permittee.		X	X	X
ISC Condition #14	When the Facility is nearing completion, Permittee shall place a notice to that effect in the newspapers in the general area of the Facility.		X		
ISC Condition #15	The Permittee shall provide bonding on the permit for all lands in the amount of \$17,402,873 for decommissioning and reclamation.	X			
ISC Special Condition #16	The Permittee shall update the decommissioning and reclamation plan, provide a standard decommissioning and reclamation cost estimate, and bond every five years and submit the information to the Director for review and approval.	X	X	X	X
ISC Special Condition #17	Prior to construction, the Permittee shall provide a copy of the signed Wyoming Game and Fish Department monitoring plan to the Industrial Siting Administrator.	X			
ISC Special Condition #18	Prior to construction, the permittee shall provide the Industrial Siting Administrator with documentation from the Wyoming Game and Fish Department showing analysis and compliance with the Wyoming Sage Grouse Executive Order.	X			
ISC Special Condition #19	No less than ten days prior to construction, the permittee shall notify the Wyoming Public Service Commission to facilitate scheduling of any necessary safety inspections.	X			
ISC Special Condition #20	The Permittee shall provide all employees an Environmental Awareness Training Program provided by the Wyoming Game and Fish Department upon employment.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
ISC Special Condition #21	<p>In compliance with the Albany County WECS Permit approved on July 13, 2021, the Permittee shall apply to the Federal Aviation Administration (“FAA”) for approval to install an Aircraft Detection Lighting System (“ALDS”) for all turbines at the Facility.</p> <p>a) In compliance with special conditions of the Albany County WECS Permit approved on July 13, 2021, the Permittee shall seek a variance from Albany County before constructing any turbines for which the FAA does not permit use of an ADLS.</p> <p>b) At least 30 days prior to the start of construction, the Permittee shall provide a written report to the ISD on the status of FAA approval of ADLS for turbines at the Facility, as well as any variances received from Albany County to install turbines for which the FAA does not permit use of an ADLS.</p> <p>Once the Facility is operational, Permittee shall provide monthly reports to the ISD for the first year of operations detailing the operations of the ADLS, including the duration that the FAA lights are lit during each night of the preceding month.</p>	X	X	X	
ISC Special Condition #22	In developing the Traffic Management Plan, the Permittee shall coordinate with and seek approval from Albany County emergency services to minimize and mitigate disruption to emergency services during the construction of the Facility.	X			
ISC Special Condition #23	Any new permanent or temporary private access roads constructed by the Permittee for the construction or operation of the Facility shall be located greater than one quarter mile from existing occupied, non-participating residences. This condition may be waived by signed agreement between Permittee and the landowner.		X	X	X
ISC Special Condition #24	The Permittee shall perform geotechnical investigation at each turbine location to determine whether blasting will be required for foundation excavation, and if blasting is required Permittee shall develop a blasting plan which incorporates specific blasting protocols for each location.	X			
ISC Special Condition #25	Prior to performing any blasting, the Permittee shall identify any active groundwater wells located within one mile of any proposed blasting activity; contact owners of those wells and perform pre- and post-construction testing of water levels and quality; and mitigate any degradation that is a result of blasting, including re-stabilization or replacement of well bores or pipes as required. Permittee shall report on compliance with this condition as part of the reporting required by Condition #9.	X	X		
ISC Special Condition #26	At least 30 days prior to construction, the Permittee shall submit to the ISD and Albany County Planning Department a supplement to the Acoustics Technical Report to incorporate the results of sound modeling for the final site plan and turbine type selected for the Facility. The supplement shall describe the Permittee’s compliance with the “Albany County Wind Energy and Solar Energy Siting Regulations” (Albany County 2021).	X			
ISC Special Condition #27	In coordination with the USFWS and as part of the Eagle Conservation Plan, ConnectGen Albany County LLC will develop site-specific conservation practices for the operating Facility such as the deployment of Identiflight technology or other effective measures to minimize collision risk to eagles.			X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
ISC Special Condition #28	The Permittee shall conduct construction and scheduled maintenance activities between the hours of 6 am and 8 pm, except during emergency events, or unless the Permittee provides advance notice to the ISD of activities required outside these standard hours.		X	X	
ISC Special Condition #29	Prior to the start of construction, Permittee shall provide evidence acceptable to the Council that the Permittee has obtained sufficient financial resources to construct, maintain, operate, decommission and reclaim the Facility. If sufficient financial resources are not obtained within two years, the Permit shall expire.	X			
Albany County WECS Permit Conditions of Approval					
WECS Permit Condition 1	Turbines will be setback one mile from existing non-participating residential dwellings. This setback may be waived by the affected property owner when done in accordance with the Albany County Zoning Resolution (ACZR), Chapter 5, Section 12, G, 7, i.	X			
WECS Permit Condition 2	Fire suppression systems will be installed in all turbines.			X	
WECS Permit Condition 3	Blasting will only occur during daylight hours.		X		
WECS Permit Condition 4	If a non-participating property owner suspects noise levels exceed 55 dBA at the property lines (ACZR, Chapter 5, Section 12, G, 3) and this is brought to the attention of ConnectGen (or the current owner of the project) or Albany County, ConnectGen or current owner will take steps to confirm a violation of the standard and rectify it upon its confirmation.		X	X	X
WECS Permit Condition 5	Turbines will be setback 1.5 times the height of the nacelle plus the diameter of the turbine blades from public roads.	X			
WECS Permit Condition 6	If an Aircraft Detection Lighting Systems (ADLS) is not approved for this project by the Federal Aviation Administration, ConnectGen (or the current project owner) shall ask for a variance from the Board of County Commissioners for any affected towers.			X	
WECS Permit Condition 7	A County road use and maintenance agreement shall be approved by the Board of County Commissioners prior to any development within the project boundaries (ACZR Chapter 12, G, 9).	X			
WECS Permit Condition 8	All commitments made as part of this application and these conditions will be passed on to future project owners.	X	X	X	X
WECS Permit Condition 9	ConnectGen will work with any property owner claiming to be affected by shadow flicker in excess of the industry standard of 30 hours per year.			X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
FWS Preble’s Meadow Jumping Mouse (<i>Zapus hudsonius preblei</i>) Species-specific Conservation Measures					
–	In the locations where shrub cover is present, construct collector lines, turbine buffers, crane paths, and access roads outside of the Preble’s meadow jumping mouse hibernation period (November 1–April 30) when possible. Complete any necessary removal of shrubs prior to the Preble’s meadow jumping mouse hibernation period (November 1–April 30) and at least 1 week prior to construction.		X		
–	If Preble’s meadow jumping mouse habitat must be affected during the active period (May 1–October 31), clip vegetation that will be permanently or temporarily affected to ground level, 1 to 2 weeks prior to initiation of construction of collector lines, turbine buffers, crane paths, and access roads.		X		
–	Restrict the temporary or permanent removal of vegetation to the footprint of the action during construction of collector lines, turbine buffers, crane paths, and access roads.		X		
–	Minimize footprints of access routes, staging areas, and work areas, and, when possible, locate them in previously disturbed or non-habitat areas during both construction and maintenance.		X		
–	Minimize soil compaction and the use of heavy machinery during construction of collector lines, turbine buffers, crane paths, and access roads.		X		
–	Avoid using, or minimize the amount of, concrete, riprap, bridge footings, and other impermeable features within the stream channel and riparian or adjacent upland habitats during construction of access road stream crossings.		X		
–	Where feasible, use bioengineering techniques to stabilize stream banks (https://www.fema.gov/media-library/assets/documents/156338) during construction of access road stream crossings.		X		
–	If riprap is used during construction of access road stream crossings, bury the riprap with soil, then plant with native riparian vegetation.		X		
–	Maintain habitat connectivity through culverts, of access roads crossing streams, by installing ledges or dry culverts adjacent to the culvert with the water flow. Revegetate with native riparian vegetation and allow shrubs to grow at either end of culverts.		X		

Source: ConnectGen (2020), Albany County Planning Office (2021), Abbott (2021).

Note: AQD = Air Quality Division, CPR = cardiopulmonary resuscitation, OSHA = Occupational Safety and Health Administration, U.S. DOT = U.S. Department of Transportation.

¹ The Wyoming ISC will publish the final notice, permit, and conditions following an impact assistance funding hearing anticipated in September 2021.

2.2.6.1 Project Plans

ConnectGen would develop and implement the environmental-related plans listed in table 2-7 and appendix A to detail the implementation of the measures noted above to avoid or minimize adverse effects on environmental resources from construction, O&M, and decommissioning. Each of these plans would be prepared in the time frame noted and with the agencies noted for coordination or approval.

Table 2-7. ConnectGen’s Future Environmental-Related Plans

Plan	Anticipated Preparation	Agency Coordination or Review
Bird and Bat Conservation Strategy	Prior to construction	Coordination with FWS and WYGFD
Blasting Plan	Prior to construction if final geotechnical engineering determines blasting is necessary.	Compliance with all applicable local, State, and Federal regulations. Blasting would be performed by Wyoming-licensed blaster.
Decommissioning and Reclamation Plan	Complete. Developed in support of Albany County WEC Permit and ISC permit applications	Compliance with Wyoming Industrial Development Information and Siting Act and WYDEQ regulations and Albany County Zoning Resolution (ACZR)
Eagle Conservation Plan	Prior to operation	Coordination with FWS
Emergency Response Plan	Complete. Developed in support of Albany County and ISC permit applications. Would be revised as necessary throughout Project life.	Coordination with Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff
Erosion Control Plan	Prior to construction	Compliance with measures outlined in Wyoming Pollutant Discharge Elimination System construction stormwater permit
Fugitive Dust Plan	Prior to construction	Developed pursuant to Wyoming Air Quality Standards and Regulations
Health, Safety, Security, and Environment Plan	Prior to construction	Compliance with Occupational Safety and Health Administration regulations
Historic Properties Treatment Plan	Prior to construction	Compliance with NHPA Section 106 and programmatic agreement (PA)
Lighting Plan	Prior to construction	Compliance with FAA lighting requirements
Spill Prevention, Control and Countermeasures Plan	Prior to construction	Compliance with Spill Prevention, Control, and Countermeasure Rule (40 CFR part 112)
Stormwater Pollution Prevention Plan	Prior to construction	Approval by WYDEQ
Transportation and Traffic Management Plan	Draft complete. Developed in support of Albany County and ISC permit applications. To be finalized once haul routes are determined.	Coordination with Wyoming Department of Transportation and Albany County Road and Bridge Department
Unanticipated Discoveries Plan	Prior to construction	Compliance with NHPA Section 106 and PA
Waste Management Plan	Complete. Developed in support of Albany County and ISC permit applications	Compliance with ISC regulations and ACZR
Weed Management Plan	Complete. Developed in support of ISC permit application	Coordination with Albany County Weed and Pest District
Wind Energy Monitoring Plan	Draft complete. Developed in support of ISC permit application	Coordination with WYGFD and participating landowners

Source: ConnectGen (2020).

2.2.7 Rail Tie Wind Project Planning

ConnectGen considered numerous factors to determine the most suitable location for the Project. The factors listed below were the most important to selection of the Project Area:

- Access to high-quality wind resource (10 m-per-second at turbine hub height)
- Proximity to existing high-voltage transmission capacity
- Minimization of impacts to sensitive wildlife and habitats
- Avoidance of protected lands
- Interest from local landowners and compatible land use
- Access to highways for materials delivery
- Constructability of terrain

In addition, the southwestern portion of the Project Area was previously studied in detail in the “Draft Environmental Impact Statement, Hermosa West Wind Energy Project” (WAPA 2012). The previous study provided a wealth of information on the baseline conditions for approximately half of the areas that are proposed for development of this Project, which has been incorporated into this EIS by reference, where applicable.

2.3 Summary of Impacts (*table*)

Table 2-8. Summary of Impacts

Resource	No Action Impact	Project Impact
Aesthetics and Visual Resources	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the characteristic landscape would occur and the existing conditions and trends for the resource would continue.	There would be approximately 354,850 acres of visible Class A, B, and C areas (approximately 14 percent of the analysis area) that would be impacted directly by the Project because of the visibility of Project components within the landscape, which would reduce the overall scenic quality for the area. The degree of contrast associated with the introduction of Project components for both the minimum and maximum turbine heights from key observation points (KOPs) ranges from no contrast to strong contrast based on distance from the Project and intervening topography. The degrees of visual change for maximum turbine height would be moderate to strong from 76 percent of identified KOPs as compared to 54 percent associated with the minimum turbine height. The landscape would appear substantially to severely altered; Project components would introduce form, line, color, texture, or scale uncommon in the landscape and would be visually prominent to dominant in the landscape; Project components would attract or demand attention; and Project component would begin to dominate or dominate the visual setting. The degree of visual change for travelers, tourists, and residents would range from none to strong, depending on distance from the Project and the observation point. The reduced activation time, as well as the short-duration, synchronized flashing of the ADLS, would have substantially fewer significant visual effects (duration) at night than the standard continuous, or synchronized flashing, medium-intensity red strobe FAA warning system, which would reduce the potential degrees of visual change of nighttime lighting depending on viewer location and proximity. One location was identified within the analysis area where there would be a maximum predicted shadow flicker of 25 hours and 6 minutes per year. This represents approximately 0.6 percent of the potential available daylight hours. Based on the overall analysis of these issues, the introduction of wind turbines and associated infrastructure in the characteristic landscape would result in significant impacts. Impacts associated with shadow flicker would be less than significant. Night sky impacts associated with aviation safety lighting would be significant; however, impacts to night skies may be reduced to less than significant with the implementation of ADLS.
Air Quality and Climate	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue. Without clean energy generation, increased energy demands would likely be met using the existing mix of fossil fuels and renewable energy. Continuation of fossil fuel-generated energy would result in more air emissions, increased impacts to air quality, and a greater likelihood of catastrophic climate change.	Construction of the Project would impact air quality because construction equipment, earthmoving, and travel on paved and unpaved roads would emit quantities of criteria pollutants and fugitive dust. The concrete batch plants would emit fugitive dust and require air permits from the State air permitting agency (WYDEQ). The air permit would provide enforceable limits and potential air pollution mitigation measures to reduce air emissions impacts from operation of the batch plants. Air quality impacts would be temporary, ceasing when construction of the Project is complete. The total pollutants emitted from Project construction would be a negligible portion of each county's total projected annual emissions. Estimated Project construction emissions would be well below the General Conformity <i>de minimis</i> thresholds and would not exceed Federal or State ambient air quality standards. Project operations would impact air quality because of O&M activities that would generate air pollutant emissions from equipment and vehicle exhaust, fugitive dust from soil disturbance, and travel on unpaved roads. Estimated emissions from O&M activities are significantly lower than construction emissions. Project O&M activity emissions of criteria pollutants would be well below the General Conformity <i>de minimis</i> thresholds, and Project operations would not exceed Federal or State ambient air quality standards. The Project would generate energy from a renewable resource and would result in significantly fewer emissions than if the same amount of energy generated by fossil fuels. Based on the analyses of these issues, no significant impacts to air quality would be anticipated.

Resource	No Action Impact	Project Impact
<p>Aquatic and Terrestrial Wildlife and Special-Status Species</p>	<p>Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.</p>	<p>The Project would slightly decrease available habitat for big game species. During construction, ground disturbance would temporarily remove vegetation used by big game as forage. The noise associated with construction activities would temporarily deter big game from using available habitat. Noise and intermittent activities associated with operations would also temporarily deter big game from using available habitat during operation. The Project Area intersects crucial or seasonal habitat and year-long habitats for big game. The WYGFD has not mapped big game migration corridors in the Project Area. Three HMUs completely overlap the Project Area, which amounts to approximately 2.4 percent of the total acreage of the three HMUs. Considering the percentage of impacts relative to available habitat in the Project Area, big game individuals could be impacted by Project construction and operations, but impacts would not be anticipated at the population or community levels. Impacts from noise and activities associated with construction and operations would cease when the activity was over, and impacts associated with ground disturbance would end when the disturbance was reclaimed as part of Project decommissioning. Habitat fragmentation would not be anticipated to affect wildlife communities or populations. Increased vehicle and equipment traffic on new and existing access roads would increase the risk of vehicle collisions. These impacts would be minimized through the establishment of a speed limit of 25 miles per hour (mph) on access roads, and risk would be further reduced with the completion of construction activities, but would remain at a lower level for the duration of Project O&M. Throughout the life of the Project, most wildlife would be able to effectively cross roads during times of inactivity; vehicle mortalities would not be anticipated to affect communities or populations of a species. Construction across or near stream channels or other waterbodies could increase turbidity, sedimentation, or salinity and would temporarily degrade aquatic habitat. These effects would dissipate shortly after construction activities ceased and sediment settles and would not be anticipated to affect downstream aquatic species habitat or aquatic species populations. It is conservatively anticipated that the volume of water required for construction of the Project would not exceed 200 acre-feet over the course of an 18-month construction period and could be acquired by entering into temporary water use agreements with landowners with existing water sources. Water also could be acquired by drilling temporary water wells that are not hydrologically connected to the Platte River so that no new depletions to the Platte River occur during construction and no effects to aquatic resources would be anticipated. No new water depletions are expected for Project O&M and, therefore, no effects on aquatic resources would be anticipated from water withdrawals during that time. Project construction and operations activities and vehicle traffic during construction and operations would disturb habitat for small game and nongame species and increase predation on these species from the introduction of new perching opportunities for avian predators until the disturbance was reclaimed as part of Project decommissioning and would not be expected to effect populations of species. For one special-status species, the Preble's meadow jumping mouse, the FWS's Area of Influence overlaps a portion of the Project Area. There is moderate and moderately high suitable habitat present in that portion of the Project Area, but the species is not known to occur in the Project Area. The identified moderate and moderately high suitable habitat would be avoided to the extent practicable during Project construction. Consultation with the FWS was initiated in accordance with Section 7 of the Endangered Species Act, and the FWS concurred that the species may be affected, but is not likely to be adversely affected considering that species-specific conservation measures will be implemented. Based on the analysis, no significant impacts would be anticipated to terrestrial and aquatic wildlife and special-status species.</p>

Resource	No Action Impact	Project Impact
Avian and Bat Species	<p>Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.</p>	<p>Ground-disturbing construction and operations activities would impact avian and bat habitat through the removal of vegetation used by birds for nesting, foraging, and brood-rearing. Construction disturbance and operations infrastructure would impact 1,471.3 acres of habitat (5.6 percent of the Project Area) until those areas were reclaimed following construction and again during decommissioning.</p> <p>Anticipated bird fatalities from collisions with vehicles and met towers, and electrocution from aboveground collector lines, would be negligible. There would be no expected population or community-level effects. As required under NEPA, the Project would develop and implement a Bird and Bat Conservation Strategy (BBCS), in consultation with the FWS, to avoid and reduce potential impacts that may result from Project operations. Collision and electrocution effects are not anticipated to impact communities or populations and would end with decommissioning.</p> <p>Project construction and, to a lesser extent, O&M activities in the siting corridors would disturb prey habitat and individual prey animals until construction activities ceased or disturbed areas are reclaimed during decommissioning and are not anticipated to impact individual raptors or communities or populations. Construction activities would remove vegetation that could serve as substrate for nesting avian species in the siting corridors until disturbed areas are reclaimed. Although some birds would be displaced from nesting in the siting corridors, it is anticipated that they would use suitable habitat outside the siting corridors during construction disturbance. Noise and increased human presence from construction and O&M activities, equipment, and personnel would affect some individual birds nesting success because of nest abandonment, direct mortality, reduced fitness and survivorship, and disturbance of nesting vegetation. Effects would decrease with the end of construction activities and cease with reclamation during decommissioning. A BBCS and an eagle conservation plan would be developed and implemented to avoid and reduce potential impacts to avian and bat species. Avian and bat species of concern would be impacted by habitat loss and fragmentation, increased activity, and vehicular traffic in the same ways described for avian and bat species more generally; populations are not anticipated to be affected. The Project would develop and implement eagle conservation practices to minimize the unintentional take of eagles, including setting wind turbines back at least 1 mile from known, occupied eagle nests. The risk of bird and bat mortality from turbine blade collision would be slightly increased for the Siemens Gamesa 6.0 MW turbines because they would have more total wind-swept area compared to the Vestas 5.6 MW turbines and GE 3.0 MW turbines. The relationship between turbine height and bat mortality risk is unclear for the range of turbines being considered. Project construction and O&M would disturb roost sites and hibernacula for bats if present in the siting corridors in rocky outcrops (0.48 percent of the siting corridors) or forested habitat (0.82 percent of the siting corridors); however, bats could avoid these areas during construction, O&M, and decommissioning activities and return when activities cease and reclamation is completed at each phase. Based on the analysis of these issues, impacts are expected to individual birds and bats, but would not be significant. Bird and bat populations are not expected to be affected. The operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtain an Eagle Incidental Take Permit from the FWS so that operation of the Project would comply with the Bald and Golden Eagle Protection Act.</p>

Resource	No Action Impact	Project Impact
Cultural Resources and Native American Concerns	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to cultural resources would occur from the Project and existing conditions and trends that cultural resources are undergoing would continue. Therefore, the No Action Alternative would result in no added sources of, and would not cause, new impacts or adverse effects on cultural resources.	The Project would not physically impact known NRHP-eligible cultural resources or known resources of potential traditional or religious cultural importance to Native Americans, as avoidance of these resources, as well as other resources, where possible, is planned. If not avoidable, the programmatic agreement (PA) addresses the minimization and mitigation of impacts and adverse effects. The Project would result in nonphysical impacts to known NRHP-eligible cultural resources where setting and/or feeling are important characteristics contributing to the site's NRHP eligibility, and possibly to resources of potential tribal importance, should they be identified within the 10-mile zone of the area of potential effects during the consultation process, or newly identified within the Project footprint during the Class III survey. Implementation of mitigation measures under the PA, including a Historic Properties Treatment Plan, would resolve all adverse effects under the NHPA.
Geology, Soil, and Mineral Resources	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance would occur from the Project and the existing conditions and trends for the resource would continue.	The Project would not restrict access for mineral development as the likelihood of development is low and access would still be available for much of the Project Area. The Project is in areas with soils appropriate for construction and the Project would be designed and constructed so as not to increase the likelihood of geologic hazards or soil erosion. The impacts to unique or productive soils would be limited—approximately 164 acres of the prime farmland or farmland of statewide important soils would be permanently converted by the Project, which equates to approximately 2.5 percent of these soil types present within the siting corridor. Based on the analyses of these issues, no significant impacts would be anticipated to these resources.
Land Uses	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.	The Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans. Existing land uses would be preserved to the extent possible. Land uses would be reestablished during decommissioning of the Project. The 0.3 acre of prime farmland and 1.7 acres of farmland of statewide importance (if irrigated) that would be converted to Project disturbance during O&M would be reclaimed during decommissioning. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.
Paleontological Resources	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue. Therefore, there would be no impacts to paleontological resources.	Impacts to paleontological resources would result from the discovery of fossils during construction activities. The Project includes appropriate measures for minimizing negative impacts to important paleontological resources (PALEO-1 through PALEO-4). Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

Resource	No Action Impact	Project Impact
Public Health and Safety	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for public health and safety would continue.	<p>Potential risks to worker health and safety would be unavoidable; however, these risks would be minimized to the extent possible, and injury rates associated with the Project are not expected to exceed national occupational injury and illness rates. Fire risks and the potential for illegal or criminal activities associated with the Project would be minimized and would not increase the risk of public or worker exposure to health or safety risks. The Project would not exceed the capacities or materials or existing emergency responders that service the Project Area, nor would Project activities result in traffic delays that would lead to degradation of emergency response times. The Project would not increase the public's exposure to EMFs or corona sources, and workers would not be exposed to Project-related EMFs or corona sources. Turbine setbacks from public roads included in the WECS permit avoid impacts to the public from ice throw. Based on the analyses of these issues, no significant impacts would be anticipated related to public or worker health and safety.</p> <p>Construction of the Project would directly and unavoidably impact noise levels at sensitive receptors, but the impacts would cease with the end of construction. Because construction noise is exempt from the Albany County wind energy siting regulations (Albany County 2021), construction of the Project would not violate any allowable noise levels established by Federal, State, or local laws, regulations, or guidelines. Vibration from activities associated with Project construction would not be noticeable at the nearest NSA. If any blasting is required during Project construction, it would be limited to the hours between sunrise and sunset and comply with State and local blasting regulations, including the use of properly licensed personnel and obtaining necessary permits and authorizations. Acoustic modeling demonstrated that noise generated by Project operations would not exceed 55 dBA at any sensitive receptors. The acoustic modeling of the worst-case scenario indicated a possibility that there would be some locations of common property lines between nonparticipating private property and a participating property where the sound level might reach slightly above 55 dBA; however, it is highly unlikely that the actual noise levels at these locations would be as high as the worst-case scenario modeled. If the worst-case scenario occurs and if written landowner permission cannot be obtained at the locations where the sound level slightly exceeds 55 dBA, adjustment to final locations of turbines could be necessary to comply with the Albany County wind energy siting regulations (Albany County 2015). Based on the analyses of these issues, no significant noise impacts would be anticipated.</p>
Recreation Resources	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.	The Project could temporarily restrict or close portions of recreation areas in the Project Area; however, the use of recreation areas would not be entirely precluded. Noise during Project construction, O&M, and decommissioning would be unavoidable. Based on existing research, it is not known if Project noise would lead to the avoidance of the area by big and small game. However, if avoidance occurred, once construction and decommissioning activities are complete, it is anticipated that big and small game would return to the area; therefore, the quality of hunting opportunities are anticipated to remain similar to existing conditions. Increased demands on recreation resources from Project workers would not exceed the capacities or availability of existing recreation resources. Based on the analyses of these issues, no significant impacts would be anticipated to recreation resources.

Resource	No Action Impact	Project Impact
Social and Economic Resources (including Environmental Justice)	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing social and economic conditions and trends would continue. Population, employment, public services, housing, property values, and tax revenues in the analysis area would continue to be influenced by local, regional, national, and, in some aspects, global economic and social influences.	The temporary population increase during construction is estimated to be about 1 percent of the current population of Albany County, and it would not result in a demand for housing or public services that could not be met by existing housing and capacity of public services. Construction and operations of the Project would provide increases in State and local tax revenues. The Project would not be expected to materially decrease the property values for nearby homes; detailed, peer-reviewed studies of the effects of wind facilities on residential property values have shown small increases and decreases that are not statistically significant related to the announcement or presence of wind facilities, and that any predicted or observed changes are influenced by other multiple factors. Analysis of U.S. Census data do not indicate that there are high minority or low-income populations in the immediate vicinity of the Project. Based on the analysis of these issues, no significant adverse socioeconomic impacts would be anticipated from the Project, including impacts to environmental justice populations.
Transportation and Access	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new traffic, traffic patterns, or changes to transportation infrastructure would occur from the Project and the existing conditions and trends for transportation and access to the analysis area would continue.	The Project would contribute to changes in traffic volumes on roadways; however, there would be no degradation to the LOS for routes used for Project activities. The Project would increase traffic volumes at primary intersections and would result in degradation of LOS at two intersections from A to B during construction and decommissioning. These degradations of LOS would be limited to construction and decommissioning periods and would be expected to return to baseline conditions following completion of these Project phases. In addition, LOS B would not restrict flows or result in declines in convenience at levels noticeable to drivers and would not exceed an LOS threshold that warrants mitigation. The Project would minimize the extent and duration of access restrictions and changes to traffic patterns. The Project would not exceed the capacity of existing railroads and would not disrupt existing and ongoing rail operations. The Project would not conflict with airport use or planning areas or airspace. Based on this analysis, no significant impacts to transportation and access would be anticipated.
Vegetation	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.	Construction activities would remove vegetation and disturb soils, increasing the potential for noxious and invasive plant species establishment. Measures to monitor (VEG-6) and treat (VEG-7) noxious and invasive species would minimize this risk. Following construction, 88 percent of disturbed vegetation would be reclaimed, and an additional 11 percent of disturbed vegetation would be reclaimed during decommissioning. Reclamation is expected to be successful in restoring native vegetation cover based on the primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMs. Fugitive dust from vehicles would affect plants growing in localized areas along access roads, and effects would diminish with the end of construction, occurring only occasionally during O&M. Based on this analysis, no significant impacts would be anticipated for vegetation.

Resource	No Action Impact	Project Impact
Wetland and Water Resources	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to wetland and water resources would occur from the Project and the existing conditions and trends for the resource would continue.	Previous field investigations described in the "Surface Waters Assessment Report for the Hermosa West Wind Farm Project" noted that that project was not expected to contribute marked changes in sediment load (Environmental Resources Management Southwest, Inc. [ERM] 2010a). The Project would not reduce water availability. Project activities would not connect groundwater aquifers, and aquifers in the Project Area have a high recharge rate. Construction would disturb up to approximately 9.9 acres of wetlands during construction and 0.8 acre of wetlands during operations. The Project would include 186 stream crossings for a total of 23,157.4 linear feet. Of these stream crossings, 17 would be perennial and 169 would be ephemeral or intermittent. Several of the ephemeral waterbodies within the siting corridors could be considered non-WOTUS by the ACE and jurisdictional status would need to be determined. If WOTUS could be impacted, ConnectGen would complete a formal WOTUS delineation prior to construction and would use these results to further microsite the Project to avoid or minimize potential impacts to jurisdictional WOTUS, to the extent practicable, and support final CWA Section 404 and EO 11990 permitting requirements (WQ-5). ConnectGen has committed to minimizing and mitigating potential impacts to wetlands and WOTUS through use of EPMS and would comply with Section 404 permitting for any potential impacts to wetlands and/or WOTUS. ConnectGen has committed to spill containment and hazardous materials storage and use measures to minimize potential impacts to surface water and wetlands. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.
Wildland Fire	Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the wildland fire environment would occur from the Project and the existing conditions and trends for wildfires would continue.	Construction and operations of the Project would increase the potential risk of wildfire ignitions. The Project would comply with Wyoming electrical safety codes and standards, including the National Electric Code, and would implement setbacks and other measures that would mitigate this risk. In compliance with the Albany County WECS Permit, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The incidence of turbine-ignited fires is rare, and wildfire ignitions in the Project Area are infrequent. A SCADA system would detect any fire impacting infrastructure and shut down affected systems. Local fire departments would respond to fires in the Project Area to prevent fire from spreading and extinguish them. These response resources would be supported by a large contingent of State and Federal fire responders through established mutual aid agreements. Based on this analysis, no significant impacts to wildland fire would be anticipated.

This page intentionally left blank.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter contains the analysis of potential impacts that would occur from the Project. The chapter is organized by resource groups, and within each resource there are descriptions of the existing conditions for resources of concern as well as discussion of the potential issues that were raised during the scoping process.

Information on existing conditions has been compiled from published literature, publicly available data, information provided by cooperating agencies and other interested parties, and from technical reports provided by ConnectGen, as noted in the individual resource sections. The technical reports provided by ConnectGen were reviewed by WAPA and its NEPA contractor to verify that the information was collected with valid methodologies and represents the best available science. These reports are available on WAPA's Project website at <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>.

3.2 Aesthetics and Visual Resources

The term "aesthetic and visual resources" (visual resources) refers to the composite of basic terrain, geologic and hydrologic features, vegetative patterns, and human-built features that influence the visual appeal of a landscape. This section describes the existing context of the visual environment and assesses the potential impacts from the construction and operations of the Project.

3.2.1 Regulatory Background

The CEQ regulations for implementing NEPA identify aesthetic effects as a type of impact to be addressed in a review under NEPA, and state that EISs should include discussion of the design of the built environment (40 CFR 1502.16, 1508.8). The DOE NEPA Implementing Procedures (10 CFR 1021.103) identifies that the DOE adopts the regulations for implementing NEPA as identified in 40 CFR 1500–1508 to comply fully with CEQ regulations.

The Federal Government has not adopted laws or regulations that provide specific protection for visual resources on privately owned lands or specific direction for assessment of impacts to such resources. NEPA and its implementing regulations include visual resources as an element of the human environment to be considered in assessing the impacts of an action, but they do not specify how that assessment is to be conducted. Although various Federal laws, regulations, and guidelines address treatment of visual resources on Federal lands, those measures are specific to the Federal lands under the jurisdiction of Federal land management agencies such as the Bureau of Land Management (BLM) and the Forest Service (FS).

To provide a systematic basis for evaluating visual resources, the description of existing visual resources and the assessment of potential impacts to those resources associated with the Project are based on the BLM Visual Resource Management System (Tetra Tech 2020a).

3.2.2 Data Sources

Data used to characterize the baseline and analyze the impacts to visual resources from the Project include the following sources:

- EPA: Level IV ecoregions of Wyoming and Colorado
- BLM: visual resource inventory – Wyoming, Rawlins Field Office and Colorado, Royal Gorge Field Office
- FS: Medicine Bow-Route National Forest Scenery Management System (SMS)

Further information, research, and data used in the following analysis can be found within the “Rail Tie Wind Project Visual Impact Assessment” and the “Rail Tie Wind Project Shadow Flicker Assessment Technical Report” (Tetra Tech 2020a, 2020b).

3.2.3 Analysis Area

The analysis area for visual resources is defined as the area of visibility up to 30 miles from the Project Area. This analysis area was determined following research conducted by Argonne National Laboratory and the BLM in “Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes” (Sullivan et al. 2012).

Sullivan et al.’s findings determined that wind facilities with turbine heights ranging from approximately 300 to 400 feet under favorable viewing conditions would be a major focus of visual attention for up to 12 miles and are likely to be noticed by casual observers up to approximately 23 miles during the day. Findings suggest that for wind facilities of this height, an appropriate radius for visual impact analysis would be 30 miles and that wind facilities would be unlikely to be missed by casual observers up to 20 miles and that wind facilities could be a major source of visual contrast up to 10 miles from wind facilities (Sullivan et al. 2012). Although the distance thresholds in the referenced study applied to turbines that are smaller in scale and can be considered conservative in this analysis, more recent studies have not been conducted to validate the prominence of larger turbines in the western landscape. Based on precedents set by studies for other wind energy facilities in Wyoming, the visual analysis area of 30 miles was determined appropriate for this analysis (Tetra Tech 2020a).

To investigate the potential visual impacts of the Project, a viewshed analysis was conducted to determine the extent to which the Project (wind turbines) would potentially be visible within the 30-mile analysis area. Within the 30-mile analysis area, three distance zones were established: foreground (0–5 miles), middle ground (5–15 miles), and background (15–30 miles). The analysis identified where Project components would be visible based on topographic variability and if there were no vegetation or structures to screen a viewer from the components. This analysis, based on “bare earth” visibility, reflected the conservative scenario, or highest expected level of visibility, in determining sensitive viewing locations and potential visual impacts.

3.2.4 Baseline Description

The following provides a description of the information used to establish existing visual conditions and evaluate potential impacts from the Project. The impacts to visual resources from the construction and operations of the Project follow two primary steps: (1) establishing existing visual character and inherent scenic quality and identifying locations where people commonly view the landscape, and (2) assessing the change to the landscape and the effects on views from key locations.

3.2.4.1 Landscape Character and Scenic Quality

EPA Level IV ecoregions of Wyoming and Colorado were used to develop a description of the existing landscape character within the analysis area. Ecoregions are derived based on elements similar to physiographic provinces which are used by the BLM's visual resource inventory process for comparatively assessing scenic quality. The visual analysis area encompasses the Laramie Basin division of the Wyoming Basin Ecoregion; the Mid-Elevation Forests and Shrublands, Foothill Shrublands, and Subalpine Forests divisions of the Southern Rockies Ecoregion; and Moderate Relief Plains and Front Range Fans divisions of the High Plains Ecoregion (Tetra Tech 2020a).

Scenic or visual quality is the inherent visual appeal of a landscape. The landscape is measured in terms of its distinctiveness (or memorability), scarcity, and variety of the landform, vegetation, water, color, adjacent scenery, and human-made features and how well these features fit together. The inherent scenic quality of the analysis area was established by applying existing BLM visual resource inventories for BLM and non-BLM-managed lands in southern Wyoming and northern Colorado (figure 3-1).

Additionally, areas within the analysis area not inventoried as part of the BLM inventory process include the city of Laramie and lands within Medicine Bow-Routt National Forests under the jurisdiction of the FS. Data for the Laramie and Roosevelt Mountains within Colorado were not available. Based on similar features as those in Wyoming, it is assumed that the inherent scenic quality would be comparable to ratings in Wyoming (Tetra Tech 2020a). Based on the above information, approximately 294,613 acres (12 percent) of the analysis area is considered to have Class A or Distinctive scenic quality; approximately 1,035,260 acres (42.0 percent) has Class B or Typical scenic quality; 821,424 acres (33.5 percent) is characterized as Class C or Indistinctive; and the remaining 307,213 acres (12.5 percent) is characterized as not inventoried or other landownership.

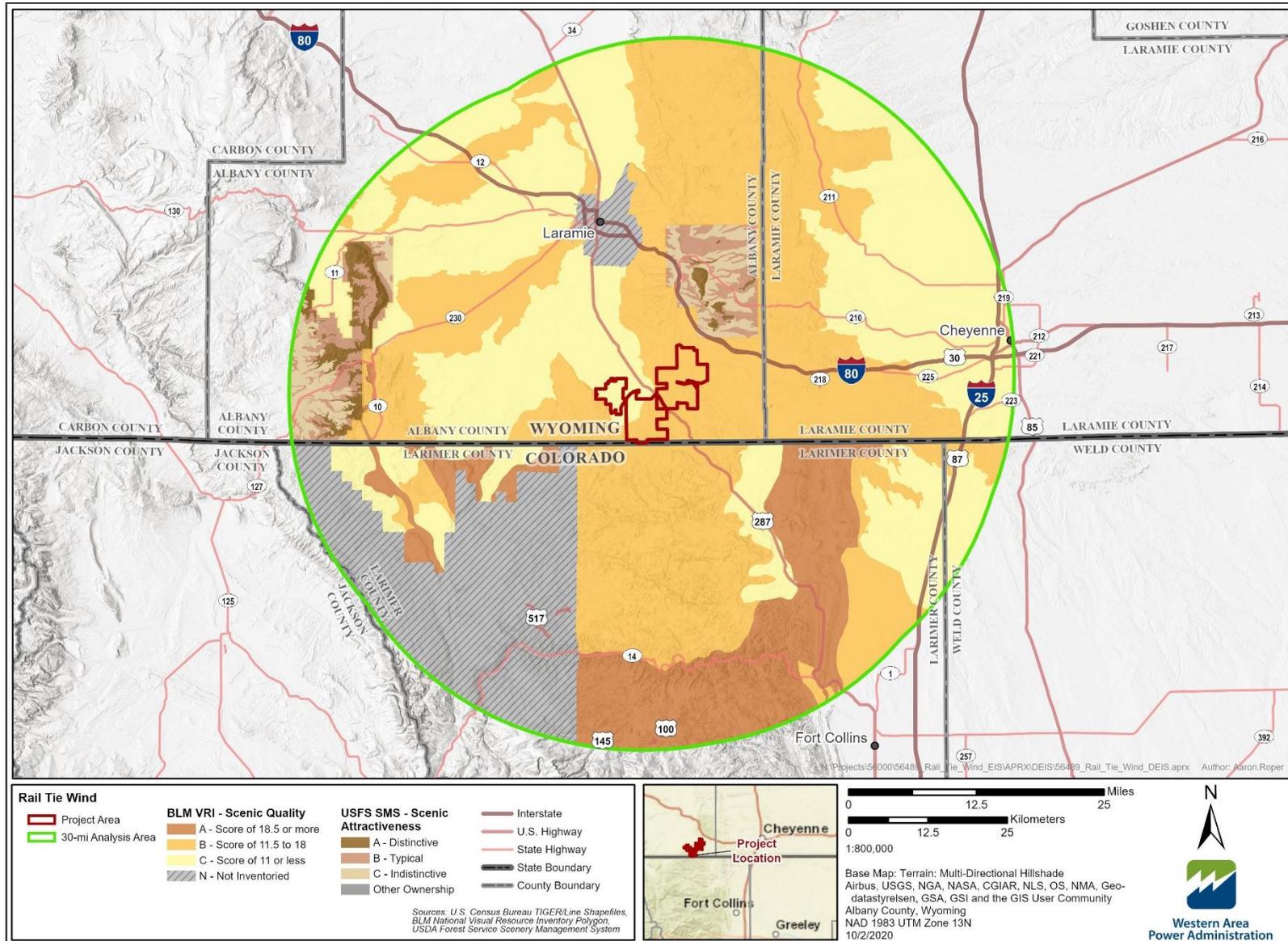


Figure 3-1. Scenic quality in the analysis area for visual resources.

3.2.4.2 Visual Sensitivity

Visual sensitivity reflects attitudes and perceptions held by people regarding the landscape and, in general, reflects the public’s level of sensitivity for noticeable visible change within the landscape.

Sensitive Viewer Groups

Sensitive viewer groups identified within the analysis area have been categorized based on their expected sensitivity to visual change within the characteristic landscape as well as activity type and potential duration of time they would be expected to remain within the analysis area. These viewer groups, which may overlap or have dual representation based on location and or use, are used in determining from where in the analysis area the Project could be viewed from a representative public.

Sensitive viewer groups are categorized by the following:

- **Travelers** – origin/destination travelers that use roadways from which the landscape is viewed.
- **Tourists and Recreational Users** – local and seasonal residents engaged in recreational activities, and tourists and recreational users visiting from outside of the local area.
- **Residents** – people who live and work within the visual analysis area. Generally, they view the landscape from their properties and homes and often from places of employment while engaged in daily activities.

Key Observation Points

Key observation points (KOPs) represent viewing locations where the sensitive viewer types could typically view the Project both from stationary platforms (e.g., residential areas, tourists, or recreation sites) or linear platforms (e.g., highways or major roadways). Thirteen KOPs were identified (table 3-1 and figure 3-2) based on locations within the analysis area that would have potential views of the Project and represent the most critical viewpoints using the criteria above.

Table 3-1. Key Observation Points within Analysis Area

KOP Number	Name	Sensitive Viewer Group	Approximate Distance from Project (miles)
1	Tie Siding	Residents/Travelers	0.0
2	The Buttes	Residents/Travelers	5.4
3	Ames Monument – State Historic Site	Tourists and Recreational/Residents	0.4
4	Cherokee Park Road and Fish Creek Road	Residents/Travelers	0.8
5	Virginia Dale Monument – Roadside Marker	Tourists and Recreational/Travelers	6.3
6	Laramie/City Ranch Road	Residents	11.0
7	Mortenson Lake National Wildlife Refuge	Tourists and Recreational/Travelers	14.0
8	Medicine Bow–Routt National Forest/Vedauwoo Recreation Area	Tourists and Recreational	2.5
9	Interstate 80 – Mile Marker 336	Travelers	4.5
10	Arapaho and Roosevelt National Forest/ Prairie Divide Road	Tourists and Recreational/Residents	9.1
11	Snowy Range Road/Big Hollow Road	Travelers	22.0
12	U.S. Highway 30 – Willow Trail	Travelers	20.0
13	Bath Brothers Ranch/Herrick Road	Tourists and Recreational	25.0

Source: Tetra Tech (2020a).

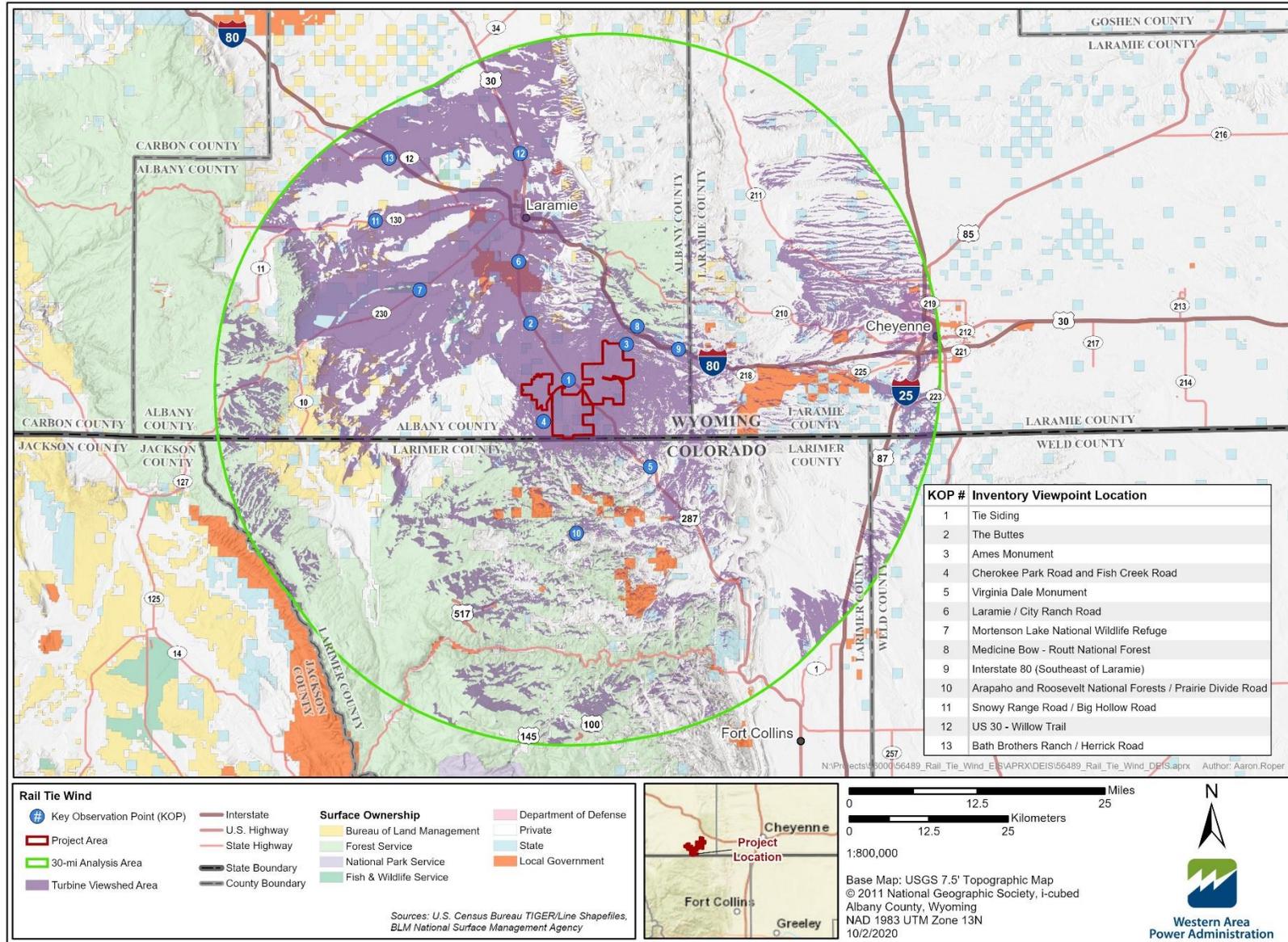


Figure 3-2. Location of KOPs in the analysis area for visual resources.

3.2.5 Impacts to Resource

This section describes the potential impacts to visual resources associated with construction, O&M, and decommissioning of the Project.

3.2.5.1 Impact Indicators

For the purposes of this analysis, an impact to visual resources could result if degrees of visual change for casual observers exceed moderate levels. Because individual viewers have different perspectives about what they value visually on the landscape, the Project was evaluated based on design elements and compared to the existing landscape. Table 3-2 defines the degrees of visual change for casual observers at KOPs and contrasted with the existing landscape’s character and inherent scenic quality and are referenced in the following impact summaries.

Table 3-2. Criteria for Assessing Level of Impacts to Visual Resources

Degrees of Visual Change	Contrast Perceived by Viewers	Magnitude of Change to Landscape Character/Scenic Quality
None	Project components would repeat elements/patterns common in the landscape Project components would not be visually evident	Landscape would appear to be intact and not attract attention Project components would repeat form, line, color, texture, or scale common in the landscape and not be visually evident (no contrast)
Weak	Project components would introduce elements/patterns common in the landscape that would be visually subordinate Project components would create weak contrast compared with other features in the landscape	Landscape would be noticeably altered and begin to attract attention Project components would introduce form, line, color, texture, or scale common in the landscape and would be visually subordinate (weak contrast)
Moderate	Project components would introduce elements/patterns not common in the landscape Project components would be visually prominent in the landscape and would create moderate contrast, compared with other features in the landscape	Landscape would appear to be substantially altered Project components would introduce form, line, color, texture, or scale not common in the landscape and would be visually prominent in the landscape (moderate contrast) Project components would attract attention Project components would begin to dominate the visual setting
Strong	Project components would introduce elements/patterns that would be visually dominant and create strong contrast, compared with other features in the landscape	Landscape would appear to be severely altered Project components would introduce form, line, color, texture, or scale not common in the landscape and would be visually dominant in the landscape (strong contrast) Project components would demand attention Project components would dominate in the visual setting

Sources: BLM (1986); Tetra Tech (2020a).

3.2.5.2 Methods of Analysis

An analysis of visual dominance, scale, and contrast of the maximum (6.0 MW) and minimum (3.0 MW) turbine size scenarios was completed to determine to what degree the Project would attract attention and to assess the relative change in landscape character and inherent scenic quality within the analysis area, compared with the existing characteristic landscape. Specifically:

- The existing visual character was evaluated from locations where people commonly view the landscape in conjunction with previous scenic quality inventories.
- Changes to the characteristic landscape were evaluated based on the criteria in table 3-2.

- The visibility of Project lighting and degree of contrast when viewed at night from KOPs were evaluated to determine how Project lighting, including ADLS, could affect sensitive viewers and night skies.
- The degree of visual contrast was evaluated to determine the effect of shadow flicker on sensitive receptors.

3.2.5.3 Proposed Action

Issue Statement #1: Would the introduction of Project components alter the existing visual character and scenic quality within the analysis area as well as when viewed from sensitive viewing platforms (i.e., key observation points) within the analysis area?

Construction

The existing visual character of the analysis area (area of visibility up to 30 miles from the Project Area) would be affected during the period of construction by the generation of fugitive dust; movement of equipment and vehicles in and out of the Project Area; and the presence and operation of construction cranes and other heavy equipment, transmission line stringing, and material stockpiles. The construction activities would introduce forms, lines, colors, textures, and motion not common in the landscape that would temporarily demand attention and create strong contrast with the existing setting. Removal of vegetation would expose lighter-color soils in the cleared areas for laydown/staging, underground electrical collection system trenches, new access roads, distribution lines, and turbine tower bases. The assembly of turbines within the Project Area would be visually dominant and would be the primary focus of attention for viewers due to the introduction of the large, vertical forms of turbine towers and associated construction cranes, as well as the introduction of geometric nacelles and rotors, all of which would create strong contrast within the characteristic landscape. The Project would use existing rights-of-way (ROWS) where possible, and collection lines would be buried and co-located with access roads to the extent practical (Visual Resources [VIS]-1). The O&M building would be designed with rural and agricultural architectural elements to minimize contrast with existing structures. The building would be painted with earth-tone colors identified in the BLM Standard Environmental Colors palette (BLM 2015) or as required by Albany County to reduce visual contrasts from color (VIS-2). Turbine components would be painted with a light, nonreflective white color in accordance with the Albany County Wind Siting Regulations (Albany County Zoning Resolution [ACZR] Chapter 5, Section 8) (VIS-4). The construction-related changes to the characteristic landscape would be more perceivable to the casual observer within foreground area (0–5 miles) and range from weak to strong (see table 3-2) within the analysis area based on the type of construction activity taking place, and time of day.

Operations and Maintenance

Visual effects during Project operations would result from the visibility of the aboveground components associated with the Project, including wind turbines, met towers, electrical collection system, substations and switchyard, overhead transmission line, O&M facility, and access roads. The magnitude of change to the landscape character within the Project Area would introduce numerous elements not currently common in the landscape.

The large stature and white coloring of the wind turbines, along with the rotational motion of the wind turbine blades would demand attention, create a strong magnitude of change (see table 3-2) to the existing landscape character, and result in a strong visual contrast when viewed within the foreground area (0–5 miles). The overhead transmission and collection lines and dirt access roads would introduce elements

common in the landscape and would be visually subordinate compared to the visual scale and dominance of the wind turbines. Within the middle ground (5–15 miles) and background areas (15–30 miles) of the Project, the magnitude of change to the existing landscape character and scenic quality would vary depending on the distance, scale, and intervening terrain and/or vegetation and would range from moderate to none.

Decommissioning

The effects of Project decommissioning would be similar to those discussed above under Construction. Degrees of visual change from decommissioning would differ from construction in that lands previously disturbed during the life of the Project would likely become less visible over time because of reclamation activities and revegetation. Removal of Project infrastructure would be more immediate, which would influence the degrees of visual change to preconstruction characteristics in a shorter duration of time as a result. But there would be an unknown duration of time for the Project footprint to be no longer visible and for the vegetation within the Project Area to return to its preconstruction state.

Effects on Landscape Character and Scenic Quality

The magnitude of change in landscape character associated with the Project would be strong (see table 32) within the Project Area as well as within the foreground area (0–5 miles) of the Project within the analysis area because of the dominant and prominent scale and form of the wind turbines in comparison to the relatively flat to undulating landforms, low-stature vegetation, and minimal built features found in the existing landscape that would be of comparable scale. Magnitude of change to landscape character within the middle ground (5–15 miles) and background (15–30 miles) areas of the Project within the analysis area would range from moderate to none because intervening topography, distance, and the introduction of Project components within the greater landscape context would begin to decrease as distance from the Project increases.

Within the analysis area, the magnitude of change to inherent scenic quality would be strong to weak in areas visible within the Project Area and foreground and middle ground areas of the Project based on visibility analysis. These areas would be impacted directly because the visibility of Project components within the landscape, which would reduce the overall scenic quality due to the introduction of Project components not common in the landscape. There would be approximately 138,930 acres of change to Class A, B, and C areas (approximately 6 percent of the analysis area) within the Project Area and the foreground zone of the analysis area, and 215,920 acres of change to Class A, B, and C areas (approximately 9 percent of the analysis area) within the Project Area and the middle ground zone of the analysis area. Although the Project components would be visible in the background area of the Project within the analysis area, approximately 439,172 acres (18 percent of the analysis area) of the inherent scenic quality for areas within the background would have weak to no degrees of visual change because of distance and the ability to perceive the Project in relation to other existing visual elements within the landscape.

The improvements to existing access roads and the construction of new access roads within the Project Area could create opportunities for people to access previously inaccessible areas. This could result in trampling vegetation and additional resource damage (such as increased erosion), which could affect scenic quality in these areas. To prevent these potential impacts, new access roads within the Project Area would not be open for public uses. Depending on the viewer's location, there would be weak to strong degrees of visual change to the existing scenic quality and landscape character resulting from O&M activities.

Effects on Sensitive Viewer Groups

Travelers

MINIMUM TURBINE HEIGHT

Degrees of visual change would be strong (see table 3-2) for two KOPs in the foreground (0.0–5.0 miles) of the Project Area. The wind turbines would demand attention and dominate the landscape in the foreground of KOPs 1 and 4, which are located approximately 0.0–0.8 mile from the Project. The landscape from these KOPs would appear to be severely altered because of the dominance of the wind turbine structures in scale, color, line, texture, and form, as well as the motion of the turbine blades, which would create strong contrast in the setting. Degrees of visual change would be moderate for the number of turbines visible and the rotational motion of the turbine blades visible from KOP 2. Because of intervening topography, the lower portions of many turbines would be obscured, leaving only the nacelle and blades visible on the horizon, which would still attract attention and begin to dominate the visual setting. Weak to no degrees of visual change would result from either intervening topography or distance, which reduces the overall contrast and magnitude of change to the landscape character perceivable by the casual observer from KOPs 5, 7, 9, 11, and 12. Table 3-3 provides a summary of degrees of visual change for travelers by KOP.

Table 3-3. Degrees of Visual Change for Travelers – Minimum Turbine Height

KOP Number	Name	Approximate Distance from Project (miles)	Degrees of Visual Change ¹
1	Tie Siding	0.0	Strong
2	The Buttes	5.4	Moderate
4	Cherokee Park Road and Fish Creek Road	0.8	Strong
5	Virginia Dale Monument – Roadside Marker	6.3	None
7	Mortenson Lake National Wildlife Refuge	14.0	Weak
9	Interstate 80 – Mile Marker 336	4.5	Weak
11	Snowy Range Road/Big Hollow Road	22.0	Weak
12	U.S. Highway 30 – Willow Trail	20.0	None

Note: KOPs 3, 6, 8, 10, and 13 are not categorized within the Traveler sensitive viewer group (see table 3-1).

¹ See table 3-2.

MAXIMUM TURBINE HEIGHT

Degrees of visual change at KOPs resulting from the Maximum Turbine Height scenario would be similar to those associated with the Minimum Turbine Height scenario identified above with the exception of KOP 7, which would result in moderate degrees of visual change as a result of taller wind turbines that would attract greater attention and begin to dominate the visual setting along the horizon.

Tourists and Recreational Users

MINIMUM TURBINE HEIGHT

Strong degrees of visual change (see table 3-2) would be associated with two KOPs in the foreground (0.0–5.0 miles) of the Project Area. The wind turbines would demand attention and dominate the landscape in the foreground of KOPs 3 and 4, which are located approximately 0.4 to 0.8 mile from the Project. The landscape would appear to be severely altered because of the dominance of the wind turbine structures in scale, color, line, texture, and form, as well as the motion of the turbine blades, which would create strong contrast in the setting. Weak to no degrees of visual change would result from either intervening topography or distance, which reduces the overall contrast and magnitude of change to the landscape

character perceivable by the casual observer from KOPs 5, 7, 8, 9, 10, and 13. Table 3-4 provides a summary of degrees of visual change for tourists and recreational users by KOP. Under Issue Statement #1, section 3.6.5.3, "Proposed Action" considers potential impacts to specific cultural resources from the introduction of aboveground Project infrastructure.

Table 3-4. Degrees of Visual Change for Tourists and Recreational Users – Minimum Turbine Height

KOP Number	Name	Approximate Distance from Project (miles)	Degrees of Visual Change ¹
3	Ames Monument – State Historic Site	0.4	Strong
4	Cherokee Park Road and Fish Creek Road	0.8	Strong
5	Virginia Dale Monument - Roadside Marker	6.3	None
7	Mortenson Lake National Wildlife Refuge	14.0	Weak
8	Medicine Bow–Routt National Forest/Vedauwoo Recreation Area	2.5	Weak
9	Interstate 80 - Mile Marker 336	4.5	Weak
10	Arapaho and Roosevelt National Forest/Prairie Divide Road	9.1	None
13	Bath Brothers Ranch/Herrick Road	25.0	None

Note: KOPs 1, 2, 6, 11, and 12 are not categorized within the Tourists and Recreational sensitive viewer group (see table 3-1).

¹ See table 3-2.

MAXIMUM TURBINE HEIGHT

Degrees of visual change for KOPs resulting from the Maximum Turbine Height scenario would be similar to those associated with the Minimum Turbine Height scenario identified above with the exception of KOP 7, which would have moderate degrees of visual change as a result of taller wind turbines that would attract attention and begin to dominate the visual setting along the horizon.

Residents

MINIMUM TURBINE HEIGHT

Strong degrees of visual change (see table 3-2) would be associated with locations in the foreground (0-5 miles) of the Project. The wind turbines would demand attention and dominate the landscape in the foreground of KOPs 1, 3, and 4, which are located approximately 0.4 and 0.8 mile, respectively, from the Project. The landscape from these KOPs would appear to be severely altered because of the dominance of the wind turbine structures in scale, color, line, texture, and form, as well as the motion of the turbine blades, which would create strong contrast in the setting. Moderate degrees of visual change would be associated with the number of turbines visible and the rotational motion of the turbine blades perceived from KOP 2. Because of intervening topography, the lower portions of many turbines would be obscured, leaving only the nacelle and blades visible on the horizon, which would still attract attention and begin to dominate the visual setting. Weak to no degrees of visual change would result from either intervening topography or distance, reducing the overall contrast and magnitude of change to the landscape character perceivable by the casual observer from KOPs 6 and 10. Table 3-5 provides a summary of degrees of visual change for residents by KOP.

Table 3-5. Degrees of Visual Change for Residents—Minimum Turbine Height

KOP Number	Name	Approximate Distance from Project (miles)	Degrees of Visual Change ¹
1	Tie Siding	0.0	Strong
2	The Buttes	5.4	Moderate
3	Ames Monument – State Historic Site	0.4	Strong
4	Cherokee Park Road and Fish Creek Road	0.8	Strong
6	Laramie/City Ranch Road	11.0	Weak
10	Arapaho and Roosevelt National Forest/Prairie Divide Road	9.1	None

Note: KOPs 5, 7, 8, 9, 11, 12, and 13 are not categorized within the Residents sensitive viewer group (see table 3-1).

¹ See table 3-2

MAXIMUM TURBINE HEIGHT

Degrees of visual changes for KOPs resulting from the Maximum Turbine Height scenario would be similar to those associated with the Minimum Turbine Height scenario identified above with the exception of KOP 6, which would have moderate degrees of visual change (see table 3-2) because taller wind turbines would attract attention and begin to dominate the visual setting along the horizon.

Issue Statement #2: How would lighting associated with Project construction, operations, and decommissioning (including aircraft warning lights) affect sensitive viewers and night skies?

Effects on Night Skies

Wind Turbines

To avoid aircraft collisions, the proposed turbines must be lighted at night. Night sky contrasts can be substantial in rural, undeveloped areas similar to the night sky environment of the analysis area because there are few other light sources and the dark background is uniform and generally featureless. In compliance with special conditions of the Albany County WECS Permit, ConnectGen would apply to the FAA for approval to install an Aircraft Detection Lighting System (ADLS) for all turbines (see section 2.2.6, “Environmental Protection Measures”). This analysis is based on the implementation of the FAA Type L-864 red lights. FAA warning lights could be visible for more than 20 miles depending on atmospheric conditions (Tetra Tech 2020a). The required FAA lights would introduce visual contrast to the landscape during nighttime hours. Should the Project turbines be constructed, there would potentially be 84 to 149 flashing red lights within the Project Area (depending on the turbine model selected), located approximately 292 to 410 feet above the ground. These lights would simultaneously flash 20 to 40 times per minute (Tetra Tech 2020a). FAA lights associated with the Project would introduce a dense horizontal cluster of flashing lights into a rural landscape that is relatively dark at night and would, therefore, introduce strong degrees of visual change (see table 3-2) within the night sky environment. Although the Project would follow FAA Obstruction Marking and Lighting requirements as defined by Advisory Circular No 70/7460-1L, ConnectGen would coordinate with the FAA on the feasibility of implementing an ADLS to reduce the potential effects of nighttime lighting (VIS-5).

With an ADLS (or a similar system), the red lights would remain off until activated by the detection of nearby aircraft and would then turn on/turn off again after the aircraft leaves the area. Implementation of an ADLS is dependent upon several factors, including flight paths, proximity of airports, commercial availability, technical feasibility, and agency review and approval. ConnectGen is working with the FAA (separate process, outcome unknown) on approval of an ADLS that would consider flight volume and

patterns. The synchronized flashing of the ADLS, if implemented, would result in strong, shorter-duration night sky effects to the surrounding landscape. If approved during the FAA permit and process, the short-duration synchronized flashing of the ADLS would have substantially fewer visual effects at night than the standard continuous, medium-intensity red strobe FAA warning system, which would help to reduce the potential degrees of visual change of nighttime lighting to either moderate or weak (see table 3-2) depending on viewer location and proximity.

Other Light Sources

In addition to the FAA lights associated with the wind turbines, other proposed nighttime light sources associated with the Project include manually activated emergency and security lighting located at the two substations and the switchyard and security lighting at the O&M facility. Outdoor facility lighting would be designed with light caps and/or directed downward to minimize off-site glare (VIS-3). The amount and character of the light generated by the substations and O&M facility would be consistent with either residential yard lighting that is common in the area or similar to commercial facilities that might employ similar lighting within the analysis area, such as the Mountain Cement Company. In addition, the proposed security lights would also be consistent with existing light sources within the analysis area, including small-scale exterior lighting around residences, outbuildings, and commercial buildings near Tie Siding, Boulder Ridge, and along U.S. 287 (Tetra Tech 2020a).

Issue Statement #3: How would the introduction of wind turbines and associated shadow flicker impact sensitive receptors?

A wind turbine's moving blades can cast a moving shadow on locations within a certain distance of a turbine. These moving shadows are called shadow flicker. The extent of shadow flicker depends on the time of year and day (which determine the sun's azimuth and altitude angles) and the wind turbine's physical characteristics (height, rotor diameter, blade width, and orientation of the rotor blades). Shadow flicker does not occur when the sun is obscured by clouds or fog, at night, or when the source turbine(s) are not operating. Shadow flicker intensity is defined as the difference in brightness at a given location in the presence and absence of a shadow. Shadow flicker intensity diminishes with greater receptor-to-turbine separation distance. Shadow flicker intensity for receptor-to-turbine distances beyond 6,562 feet (approximately 1.24 miles) is very low and generally considered imperceptible. In general, shadow flicker could become more noticeable as one gets closer to turbines, with the largest number of shadow flicker hours, along with greatest shadow flicker intensity, occurring nearest the wind turbines (Tetra Tech 2020b).

The shadow flicker analysis area includes sensitive receptors (e.g., residences, businesses, historic sites, etc.) within 2 miles of Project Area; 184 potential sensitive receptor locations were evaluated within and surrounding the Project Area (Tetra Tech 2020b). Sensitive receptor locations included occupied or potentially occupied residences, one fire station, one business, and two NRHP-listed cultural resources: Ames Monument National Historic Landmark (NHL) and Dale Creek Bridge (Tetra Tech 2020b). Visual impacts to cultural and historic properties are further described in section 3.6, "Cultural Resources and Native American Concerns."

Sensitive receptor locations had modeled shadow flicker as less than 30 hours per year for each potential turbine location, which is within the acceptable industry standard range for avoiding nuisance. The sensitive receptor with the highest level of shadow flicker for any layout scenario was Receptor 19, a participating landowner located in the southern portion of the Project Area, where there would be a maximum predicted shadow flicker of 25 hours and 6 minutes per year. This represents approximately 0.6 percent of the potential available daylight hours (Tetra Tech 2020b). Further information related to the modeling methodology and industry standards can be found in the March 2020 "Rail Tie Wind Project Shadow Flicker Assessment Technical Report" (Tetra Tech 2020b).

3.2.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the characteristic landscape would occur and the existing conditions and trends for the resource would continue.

3.2.6 Aesthetics and Visual Resources Conclusion

There would be approximately 354,850 acres of visible Class A, B, and C areas (approximately 14 percent of the analysis area) that would be impacted directly by the Project because the visibility of Project components within the landscape, which would reduce the overall scenic quality for the area. The degree of contrast associated with the introduction of Project components for both the minimum and maximum turbine heights from KOPs ranges from no contrast to strong contrast based on distance from the Project and intervening topography. The degrees of visual change for maximum turbine height would be moderate to strong from 76 percent of identified KOPs as compared to 54 percent associated with the minimum turbine height. The landscape would appear substantially to severely altered; Project components would introduce form, line, color, texture, or scale uncommon in the landscape and would be visually prominent to dominant in the landscape; Project components would attract or demand attention; and Project component would begin to dominate or dominate the visual setting. The degree of visual change for travelers, tourists, and residents would range from none to strong, depending on distance from the Project and the observation point. The reduced activation time, as well as the short-duration, synchronized flashing of the ADLS, would have substantially fewer significant visual effects (duration) at night than the standard continuous, or synchronized flashing, medium-intensity red strobe FAA warning system, which would reduce the potential degrees of visual change of nighttime lighting depending on viewer location and proximity. One location was identified within the analysis area where there would be a maximum predicted shadow flicker of 25 hours and 6 minutes per year. This represents approximately 0.6 percent of the potential available daylight hours. Based on the overall analysis of these issues, the introduction of wind turbines and associated infrastructure in the characteristic landscape would result in significant impacts. Impacts associated with shadow flicker would be less than significant. Night sky impacts associated with aviation safety lighting would be significant; however, impacts to night skies may be reduced to less than significant with the implementation of ADLS.

3.3 Air Quality and Climate

This section describes air quality conditions that occur within the region surrounding the Project.

3.3.1 Regulatory Background

3.3.1.1 Ambient Air Quality Standards

Federal regulations that govern air quality resources have established the following National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The NAAQS are presented in table 3-6. The EPA assigns classifications to geographic areas based on monitored ambient air quality conditions. Areas that meet the standards of a pollutant subject to NAAQS are classified as being in attainment for that pollutant. Areas that do not meet the NAAQS for a pollutant are designated as being in nonattainment for that pollutant. Areas that cannot be classified based on available information for a pollutant are designated as being unclassified. An area's attainment status is designated separately for each criteria pollutant; one area could have all three classifications. Previously designated nonattainment areas for one of the NAAQS that have since met the NAAQS standards are

referred to as attainment areas with a maintenance plan. To ensure that the air quality in those areas continues to meet the standards, a maintenance plan is developed and implemented.

Under the provisions of the Clean Air Act, any state can have requirements that are more stringent than those of the national program. In addition to the NAAQS established by the EPA, Wyoming has additional ambient air quality standards that apply. The Wyoming Ambient Air Quality Standards are codified in WYDEQ “Air Quality Division Standards and Regulations,” Chapter 2. The National and Wyoming Ambient Air Quality Standards are presented in table 3-6.

Table 3-6. Ambient Air Quality Standards

Pollutant	Averaging Time	National	Wyoming
Carbon monoxide (CO)	1 hour	35 ppm	35 ppm
	8 hour	9 ppm	9 ppm
Lead (Pb)	3 months (rolling)	0.15 µg/m ³	0.15 µg/m ³
Nitrogen dioxide (NO ₂)	Annual	53 ppb	53 ppb
	1 hour	100 ppb	100 ppb
Ozone (O ₃)	1 hour	–	–
	8 hour	0.07 ppm	0.07 ppm
Particulate matter 10 microns in diameter or smaller (PM ₁₀)	24 hour	150 µg/m ³	150 µg/m ³
	Annual	–	50 µg/m ³
Particulate matter 2.5 microns in diameter or smaller (PM _{2.5})	24 hour	35 µg/m ³	35 µg/m ³
	Annual	12 µg/m ³	12 µg/m ³
Sulfur dioxide (SO ₂)	1 hour	75 ppb	75 ppb
	3 hour	0.50 ppm	0.50 ppm

Sources: EPA (2020a); WYDEQ “Air Quality Division Standards and Regulations,” Chapter 2.

Note: µg/m³ = micrograms per cubic meter, ppm = parts per million, ppb = parts per billion.

The General Conformity Rule was established under the Clean Air Act Section 176(c)(4) and serves to ensure that Federal actions do not inhibit states’ attainment plans for areas designated as nonattainment or maintenance. The rule effectively applies to all Federal actions that take place in areas designated as nonattainment or maintenance. *De minimis* levels, established under the General Conformity Rule, are based on the severity of an area’s air quality problem and establish a threshold for determining if a general conformity determination must be performed. Activities below this threshold level are assumed to have no significant impact to air quality. *De minimis* levels for hazardous air pollutants (HAPs) and GHGs are not yet defined. Exceptions to the General Conformity Rule include the following: actions covered under the transportation conformity rule, actions with associated emissions below specified *de minimis* levels, and other actions that are exempt or presumed to conform.

In 1999, the EPA announced an effort, known as the Regional Haze Rule (EPA 1999), to improve air quality and visibility in 156 national parks and wilderness areas designated as Class I. Regional haze reduces long-range visibility over a wide region. Section 169A of the Clean Air Act sets forth a national goal for visibility. The rule requires states to demonstrate reasonable progress toward the “prevention of any future, and the remedying of any existing, impairment in Class I areas which impairment results from manmade air pollution.” There are several Class I areas near the Project Area. The nearest Class I area is the Rawah Wilderness 23 miles southwest of the Project Area. Rocky Mountain National Park is 32 miles south of the Project Area. The Mount Zirkel Wilderness lies 55 miles west-southwest of the Project Area.

3.3.2 Data Sources

The National Oceanic and Atmospheric Administration (NOAA) catalogues meteorological and climatological data from weather stations across the United States, including stations near the analysis area.

The National Emissions Inventory is a detailed annual estimate of criteria pollutants and HAPs from air emission sources. Data are collected from State, local, and tribal air agencies and supplemented with data from the EPA (EPA 2020b). The emissions inventory includes estimates of emissions from many sources, including point sources, nonpoint sources, on-road sources, nonroad sources, and event sources. When combined, the emission estimates from these sources create as complete an inventory as possible.

3.3.3 Analysis Area

For air quality, the analysis area contains portions of five counties: Albany and Laramie Counties in Wyoming, and Jackson, Larimer, and Weld Counties in Colorado (figure 3-3). Air pollutants tend to disperse into the atmosphere, becoming more spread out as they travel away from a source of pollution, and, therefore, cannot be confined within defined boundaries such as the boundary of the Project Area or county lines. Because of the nature of air pollutants, the air quality analysis area extends approximately 31 miles (50 kilometers) in all directions beyond the Project Area. A 31-mile radius was chosen to be consistent with minimum air quality analysis required for major source air quality permitting.

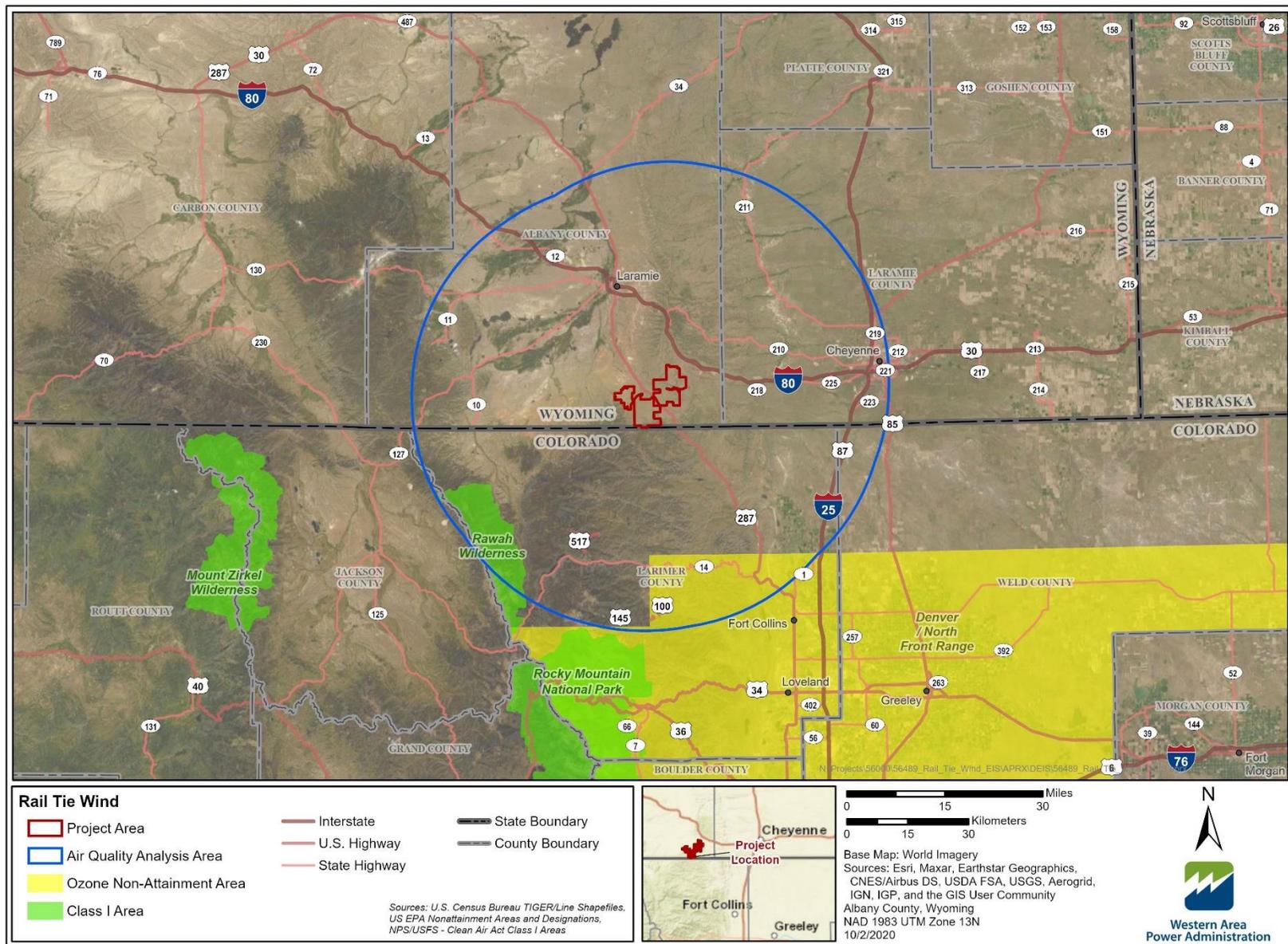


Figure 3-3. Air quality analysis area.

3.3.4 Baseline Description

3.3.4.1 Meteorology and Climate

Wyoming and Colorado are in the interior of the United States, exposing them to a climate with large ranges in temperature. The Project Area experiences cold winters and mild to warm summers. The proximity to the jet stream brings frequent storm systems. The lack of nearby oceans results in a semiarid climate (NOAA 2020a). In winter, the jet stream is either directly above or to the north of Wyoming, which accounts for the frequent strong winds, blasts of arctic air, and sudden precipitation events that occur. In summer, the jet stream retreats northward over Canada, leaving the Project Area's weather mild and pleasant. The average winter temperature (December–February) is 22°F in the Project Area, whereas the average summer temperature (June–August) is 61°F (NOAA 2020b). The Project Area receives approximately 11 inches of precipitation annually. Snowfall averages approximately 50 inches annually in the Project Area (NOAA 2020b).

3.3.4.2 Ambient Air Quality

Albany and Laramie Counties in Wyoming and Jackson County in Colorado are in attainment for all criteria pollutants; therefore, the General Conformity Rule does not apply. Portions of Weld and Larimer Counties are not in attainment with the standard for ozone. The portion of Weld County that is designated as in nonattainment with the ozone NAAQS is outside of the 31-mile analysis area. But the analysis area does extend to a portion of the nonattainment area in Larimer County, Colorado, northeast of Fort Collins. The Denver-Boulder-Greeley-Fort Collins-Loveland area is in serious nonattainment of the 2008 8-hour ozone NAAQS. The Denver Metro/North Front Range area is in marginal nonattainment of the 2015 8-hour ozone NAAQS. The ozone nonattainment area is indicated on figure 3-3.

3.3.4.3 Emission Inventories for Counties in the Analysis Area

Emission inventories are useful in comparing emission source categories to determine which industries or practices are contributing to the general level of pollution in the five counties included in the analysis area. Emission inventories provide an overview of the types of pollution sources in the area, and the amount of pollution being emitted on an annual basis by said sources. For the purposes of this assessment, the most recent National Emissions Inventory conducted in 2017 was summarized. This inventory is a good estimate of how much each county and state is contributing to air pollution each year. The emission inventory data for 2017 for each county are presented in table 3-7.

Table 3-7. 2017 County Emissions Inventories (tons per year)

Category ¹	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	HAPs	GHGs ²
Albany County, WY	21,943	7,422	16,781	3,062	347	13,502	2,642	1,213,601
Laramie County, WY	17,270	9,356	29,944	4,083	369	9,555	1,933	2,311,544
Jackson County, CO	8,073	771	2,016	778	42	10,528	1,242	99,082
Larimer County, CO	49,504	7,146	9,646	2,614	1,008	24,755	3,290	4,158,686
Weld County, CO	61,567	30,096	29,164	5,887	354	95,465	9,855	5,082,301

Source: EPA (2020b).

Note: Column totals may not sum exactly because of rounding. NO_x = nitrogen oxides, VOC = volatile organic compound.

¹ WY = Wyoming, CO = Colorado.

² CO₂e (CO₂ equivalent) assumes an EPA-recommended global warming potential of 25 for methane (CH₄) and 298 for nitrous oxide (N₂O).

Of the five counties within the analysis area, Weld County, Colorado, contributed the most to carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter 2.5 microns in diameter (PM_{2.5}), volatile organic compound (VOC), HAPs, and GHG pollution in 2017. Laramie County, Wyoming, contributed the most particulate matter 10 microns in diameter (PM₁₀) pollution. Larimer County, Colorado, contributed the most sulfur dioxide (SO₂) pollution.

3.3.4.4 Greenhouse Gases/Climate Change

Climate change is a global issue that results from several factors, including the release of GHGs, land use management practices, and the albedo effect, or reflectivity of various surfaces (including reflectivity of clouds). Specific to this Project, GHGs are produced and emitted by various sources during the construction and operational stages of wind power generation.

The recently released second volume of the Fourth National Climate Assessment focuses on the human welfare, societal, and environmental elements of climate change and variability for 10 regions of the United States (Hayhoe et al. 2018). Global climate is changing rapidly. Evidence for these changes consistently points to human activities, especially emission of GHGs, as the dominant cause. Global average temperature has increased by approximately 1.8°F from 1901 to 2016. Without significant emission reductions, annual average global temperatures could increase by 9°F or more by the end of this century (compared to preindustrial temperatures) (Hayhoe et al. 2018).

3.3.5 Impacts to Resource

This section describes the potential impacts to air quality and climate associated with the construction, operations, and maintenance of the Project. Impacts to air quality and climate are discussed in terms of Project emissions of criteria air pollutants and GHGs. The primary sources of criteria air pollutants associated with wind power are from fuel combustion in equipment and vehicles used during construction and maintenance and concrete batch plant emissions. The GHGs associated with wind power are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The primary sources of these GHGs are from fuel combustion in equipment and vehicles used during construction and maintenance, concrete batch plant emissions, and operational emissions of sulfur hexafluoride (SF₆) associated with potential leakage from gas-insulated circuit breakers.

3.3.5.1 Impact Indicators

For the purposes of this analysis, an impact to air quality and climate could result if any of the following were to occur from the construction, O&M, and decommissioning of the Project:

- Emission estimates for regulated pollutants and GHGs exceed applicable regulations
- Project emission estimates exceed county emission inventories
- Emission estimates for O&M exceed General Conformity *de minimis* levels

3.3.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to air quality and climate.

Estimates of emissions from Project construction were compared against the applicable general conformity *de minimis* levels (CO and ozone nonattainment). Emissions estimates for construction and operations of the Project were conducted using the following:

- The most recent version of the EPA’s Motor Vehicle Emission Simulator (MOVES) tool was used to develop motor vehicle and construction equipment exhaust emission factors (EPA 2015).
- EPA’s “Compilation of Air Pollution Emission Factors,” AP-42 (EPA 2009).
- Western Regional Air Partnership, “Fugitive Dust Handbook,” revised 2006 (Western Regional Air Partnership 2006).
- WAPA draft EIS, Hermosa West Wind Energy Project (WAPA 2012).
- Project-specific information provided by ConnectGen for the emissions analysis, including engineering and/or process-specific data and construction and/or operations data (e.g., manpower schedules, equipment schedules, operations schedules, etc.).

3.3.5.3 Proposed Action

Issue Statement #1: How would criteria pollutant and fugitive dust created during construction affect air quality?

Construction activities would result in air pollutant emissions from equipment exhaust, vehicle exhaust from travel to and from the Project Area, delivery truck exhaust, and fugitive dust from soil disturbance and travel on unpaved roads. Table 3-8 summarizes the estimated construction-related Project emissions.

Table 3-8. Estimated Project Construction Emissions (tons per year)

Category ¹	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	GHGs
Road construction	0.7	1.9	0.1	0.1	0.0	0.1	1,393.0
Foundation excavation	0.9	2.1	0.2	0.2	0.0	0.2	908.0
Rebar	0.4	0.6	0.1	0.1	0.0	0.1	154.0
Concrete placement	0.2	0.6	0.1	0.1	0.0	0.1	1,570.0
Foundation backfill	0.3	1.0	0.1	0.1	0.0	0.1	692.0
Wind turbine unloading	0.3	1.1	0.1	0.1	0.0	0.1	230.0
Wind turbine base installation	0.5	2.2	0.1	0.1	0.0	0.1	443.0
Wind turbine tower installation	0.5	2.2	0.1	0.1	0.0	0.1	443.0
Wind turbine nacelle/rotor installation	0.7	2.4	0.1	0.1	0.0	0.2	562.0
Collection system	0.4	0.6	0.1	0.1	0.0	0.1	266.0
Substation	0.2	0.3	0.0	0.0	0.0	0.1	98.0
Miscellaneous	0.7	1.4	0.1	0.1	0.0	0.1	1,330.0
Equipment/supplies deliveries (total)	0.3	0.5	0.0	0.0	0.0	0.1	251.0
Equipment/supplies deliveries (nonattainment areas)	0.0	0.0	0.0	0.0	0.0	0.0	21.0
Worker commute	18.7	1.6	0.0	0.1	0.0	1.6	964.0
Concrete batch plant	0.0	0.0	2.4	0.5	0.0	0.0	0.0
Equipment activity (bulldozers)	0.0	0.0	3.8	2.0	0.0	0.0	0.0
Fugitive dust – site unpaved roads	0.0	0.0	5.2	0.5	0.0	0.0	0.0
Wind erosion – disturbed areas	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Project Construction Emissions	24.8	18.5	12.7	4.3	0.0	3.1	9,325

Category ¹	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	GHGs
Albany County, WY, emissions inventory (EI) total	21,943.0	7,422.0	16,781.0	3,062.0	347.0	13,502.0	1,213,601.0
<i>Percent of Albany County EI total</i>	<i>0.1%</i>	<i>0.3%</i>	<i>0.1%</i>	<i>0.1%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.8%</i>
Laramie County, WY, EI total	17,270.0	9,356.0	29,944.0	4,083.0	369.0	9,555.0	2,311,544.0
<i>Percent of Laramie County EI total</i>	<i>0.1%</i>	<i>0.2%</i>	<i>0.0%</i>	<i>0.1%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.4%</i>
Jackson County, CO, EI total	8,073.0	771.0	2,016.0	778.0	42.0	10,528.0	99,082.0
<i>Percent of Jackson County EI total</i>	<i>0.3%</i>	<i>2.4%</i>	<i>0.6%</i>	<i>0.5%</i>	<i>0.2%</i>	<i>0.0%</i>	<i>9.4%</i>
Larimer County, CO, EI total	49,504.0	7,146.0	9,646.0	2,614.0	1,008.0	24,755.0	4,158,686.0
<i>Percent of Larimer County EI total</i>	<i>0.1%</i>	<i>0.3%</i>	<i>0.1%</i>	<i>0.2%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>
Weld County, CO, EI total	61,567.0	30,096.0	29,164.0	5,887.0	354.0	95,465.0	5,082,301.0
<i>Percent of Weld County EI total</i>	<i>0.0%</i>	<i>0.1%</i>	<i>0.0%</i>	<i>0.1%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.2%</i>

Source: Tetra Tech (2020c).

¹ WY = Wyoming, CO = Colorado.

The Project would be constructed in compliance with applicable environmental regulations and would comply with all Federal, State, and county environmental regulations (General [GEN]-1). During construction, air emissions would be generated from fossil fuel combustion from construction vehicles and equipment, the two portable concrete batch plants, soil disturbance, and construction traffic on unpaved access roads. The main emissions from the operation of the concrete batch plants would be fugitive dust. The concrete batch plants would require air permits from the State air permitting agency (WYDEQ). The air permit would provide enforceable limits and potential air pollution mitigation measures to reduce air emissions impacts from the operation of the batch plants. Construction vehicles and equipment would be inspected periodically per the manufacturer’s specifications, maintained in good working condition (GEN-5), and would be turned off when not in use (Air Quality [AQ]-5).

Prior to the start of construction, a Fugitive Dust Control Plan would be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f) (AQ-1). All unpaved roads and disturbed areas where construction activities would occur, including temporary laydown areas, would be treated with water or other surfactants as frequently as necessary to control fugitive dust. Wind erosion control techniques such as windbreaks, water, WYDEQ-approved chemical dust suppressants, and/or vegetation would be applied to soil disturbance areas that could potentially result in wind-blown soils (AQ-2).

Overall, the total pollutants emitted from Project construction would be a negligible portion of each county’s total projected annual emissions. Larimer County is classified as a serious nonattainment for 2008 ozone standard and marginal nonattainment for the 2015 ozone standard. The General Conformity *de minimis* threshold is 50 tons per year (tpy) of VOC or NO_x for serious nonattainment and is 100 tpy of VOC or NO_x for marginal nonattainment (40 CFR 93.153(b)(1)). Emissions from delivery of equipment and materials for Project construction could occur in the nonattainment area. All vehicles that are used to transport solid bulk material on public roadways and have the potential to cause visible dust emissions on public roadways either would be covered or the materials sufficiently wetted in a manner to minimize fugitive dust emissions (AQ-4). Project construction emissions would be well below the General Conformity *de minimis* thresholds. Project construction emissions would cease upon completion of construction activities. Construction emissions would not exceed Federal or State ambient air quality standards.

Issue Statement #2: How would emissions from equipment and vehicles used during operations affect air quality?

O&M activities would result in air pollutant emissions from equipment exhaust, vehicle exhaust from travel to and from the Project Area for routine inspections, and fugitive dust from soil disturbance and travel on unpaved roads. Table 3-9 summarizes the estimated O&M-related Project emissions.

Table 3-9. Estimated Project Annual Operations and Maintenance Emissions (tons per year)

Category ¹	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	GHGs
Road maintenance	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	25
Delivery of equipment/supplies	0.06	0.09	< 0.01	< 0.01	< 0.01	0.02	46
Worker commute	3.52	0.30	0.01	0.01	< 0.01	0.31	182
Emergency generator	3.16	6.18	0.18	0.18	0.01	0.72	584
Fugitive dust – site unpaved roads	–	–	1.56	0.16	–	–	–
Wind erosion – disturbed areas	–	–	0.01	0.03	–	–	–
Total Project Operations and Maintenance Emissions	6.75	6.59	1.77	0.39	0.01	1.05	837
Albany County, WY, emissions inventory (EI) total	21,943	7,422	16,781	3,062	347	13,502	1,213,601
<i>Percent of Albany County EI total</i>	0.03%	0.09%	0.01%	0.01%	< 0.01%	0.01%	0.07%
Laramie County, WY, EI total	17,270	9,356	29,944	4,083	369	9,555	2,311,544
<i>Percent of Laramie County EI total</i>	0.04%	0.07%	0.01%	0.01%	< 0.01%	0.01%	0.04%
Jackson County, CO, EI total	8,073	771	2,016	778	42	10,528	99,082
<i>Percent of Jackson County EI total</i>	0.08%	0.85%	0.09%	0.05%	0.02%	0.01%	0.84%
Larimer County, CO, EI total	49,504	7,146	9,646	2,614	1,008	24,755	4,158,686
<i>Percent of Larimer County EI total</i>	0.01%	0.09%	0.02%	0.01%	< 0.01%	< 0.01%	0.02%
Weld County, CO, EI total	61,567	30,096	29,164	5,887	354	95,465	5,082,301
<i>Percent of Weld County EI total</i>	0.01%	0.02%	0.01%	0.01%	< 0.01%	< 0.01%	0.02%

Source: Tetra Tech (2020c).

¹ WY = Wyoming, CO = Colorado.

Emissions from vehicle travel and equipment exhaust during O&M would be minimal. Vehicles and equipment used during O&M activities would be inspected periodically per the manufacturer’s specifications and maintained in good working condition (GEN-5) and would be turned off when not in use (AQ-5). Mileage for vehicle travel to and around the Project for routine inspections would be much less than during construction. Potential SF₆ emissions from circuit breaker leaks were not estimated because the concept of leakage over time is speculative and assumes that equipment would be allowed to fall into disrepair. All circuit breakers would be maintained in proper working order and would meet all regulatory requirements (GEN-5).

Emissions from O&M activities would be significantly lower than construction emissions. The impacts to air quality from operations would continue for the operational life of the Project. Larimer County is classified as a serious nonattainment for 2008 ozone standard and as a marginal nonattainment for the 2015 ozone standard. The General Conformity *de minimis* threshold is 50 tpy of VOC or NO_x for serious nonattainment and is 100 tpy of VOC or NO_x for marginal nonattainment (40 CFR 93.153(b)(1)). Project O&M activity emissions of nonattainment pollutants would be well below the General Conformity *de minimis* thresholds. Pollutants generated by Project operations would not exceed Federal or State ambient air quality standards. The Project would generate energy from a renewable resource and would result in significantly fewer emissions than if the same amount of energy were generated by fossil fuels.

3.3.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue. Without clean energy generation, increased energy demands would likely be met using the existing mix of fossil fuels and renewable energy. Continuation of fossil fuel-generated energy would

result in more air emissions, increased impacts to air quality, and a greater likelihood of catastrophic climate change.

3.3.6 Air Quality and Climate Conclusion

Construction of the Project would impact air quality because construction equipment, earthmoving, and travel on paved and unpaved roads would emit quantities of criteria pollutants and fugitive dust. Air quality impacts, including fugitive dust emissions from the two portable concrete batch plants, would be temporary, ceasing when construction of the Project is complete. The concrete batch plants would require air permits from the State air permitting agency (WYDEQ). The air permit would provide enforceable limits and potential air pollution mitigation measures to reduce air emissions impacts from the operation of the batch plants. The total pollutants emitted from Project construction would be a negligible portion of each county's total projected annual emissions. Estimated Project construction emissions would be well below the General Conformity *de minimis* thresholds and would not exceed Federal or State ambient air quality standards. Project operations would impact air quality because of O&M activities that would generate air pollutant emissions from equipment and vehicle exhaust, fugitive dust from soil disturbance, and travel on unpaved roads. Estimated emissions from O&M activities are significantly lower than construction emissions. Project O&M activity emissions of nonattainment pollutants would be well below the General Conformity *de minimis* thresholds, and Project operations would not exceed Federal or State ambient air quality standards. The Project would generate energy from a renewable resource and would result in significantly fewer emissions than if the same amount of energy were generated by fossil fuels. Based on the analyses of these issues, no significant impacts to air quality would be anticipated.

3.4 Aquatic and Terrestrial Wildlife and Special-Status Species

This section describes the existing context of aquatic and terrestrial wildlife and special-status species, including nongame species, small game, big game, fisheries and other aquatic species, and aquatic and terrestrial wildlife species of concern to assesses potential effects on these biological resources from the construction and operation of the Project. The category of special-status species includes federally listed endangered, threatened, or candidate species under the ESA; all special-status wildlife and plant species are discussed in this section, including avian and bat species as well as plants. Sensitive species and those in need of conservation measures (collectively referred to as "species of concern") that are not ESA-listed are discussed in their respective resource sections. Species of concern include State-designated Species of Greatest Conservation Need (SGCN) and other pertinent conservation designations.

Aquatic and terrestrial wildlife does not include avian or bat species analysis with the aforementioned exception of special-status species; avian and bat special-status species discussion is included in this section. Considering the documented impacts of wind facilities to avian and bat species, these biological resources are robustly assessed separately (section 3.5, "Avian and Bat Species").

3.4.1 Regulatory Background

Various Federal laws and regulations provide protection for wildlife species. The ESA, as amended (16 United States Code 1536), is intended to protect and recover species at risk for extinction and the habitat upon which they depend. The ESA directs all Federal agencies to review their actions to determine whether they may affect endangered or threatened species or critical habitat by determining whether a listed species or critical habitat is present and whether there are potential effects to those resources. Consultation with the FWS is required if the action agency determines that a proposed action may affect a

listed species or critical habitat. If no species or critical habitat are present or affected, no consultation is required.

Although the State of Wyoming does not have any statutes establishing species as threatened or endangered, it does have State-issued wildlife management guidance documents intended to protect certain classes of wildlife. These State of Wyoming wildlife management guidance documents consist of the following:

- The “State Wildlife Action Plan” (SWAP), which is a comprehensive wildlife conservation strategy coordinated between wildlife and natural resource agencies and organizations to support the maintenance, management, and diversity of wildlife within the State, including preventing the need for future listings under the ESA (WYGFD 2017a). The Wyoming SWAP lists SGCN and categorizes them based on conservation priority: Tier I species (highest priority), Tier II species (moderate priority), and Tier III species (lowest priority).
- Wyoming Governor’s Office EO 2020-1, the Migration Corridor EO, offers a science-based approach for identifying potential big game migration corridors for consideration when managing these species and lays out the process for designating future migration corridors in the State.
- The WYGFD’s “Wildlife Protection Recommendations for Wind Energy Development in Wyoming” (WYGFD 2010), which provides recommendations for collecting baseline data prior to project siting to avoid potential conflicts with wildlife; construction and operations monitoring; and mitigating impacts to affected wildlife.

3.4.2 Data Sources

The information presented in this section comes from various sources, including technical biological survey reports developed for the Project, academic and peer-reviewed literature sources, publicly available GIS data, and governmental resources.

3.4.3 Analysis Area

Several factors influence the geographical occurrence and abundance of wildlife species, including vegetation, environmental conditions, population connectivity, and habitat quality. Therefore, the analysis area for potential effects on aquatic and terrestrial wildlife resources and special-status species varies depending on the resource type and what Project-related effects are assessed.

The following analysis areas have been identified to evaluate the extent to which potential effects from the Project could occur on aquatic and terrestrial wildlife species and special-status species:

- Species occurrences accounts for nongame, small game, big game, fisheries and other aquatic species, special-status species, and aquatic and terrestrial wildlife species of concern: The Project Area, defined as the approximately 26,000 acres encompassed within the Project boundary, is the analysis area. This analysis area and type is especially appropriate for species groups where publicly available spatial data are lacking and the overall breadth of the species category necessitates a generally qualitative approach to analysis.
- Presence or absence of habitat and general landscape alterations for special-status species and aquatic and terrestrial wildlife species of concern: The Project Area is the analysis area for determining the overall habitat value to special-status species and aquatic and terrestrial wildlife species of concern.
- Presence or absence of critical and seasonal habitat for big game species and WYGFD Herd Management Units (HMUs): The Project Area is the analysis area because big game typically require large tracts of habitat and are managed accordingly.

- Native habitat converted to Project infrastructure for nongame, small game, big game, special-status species, and aquatic and terrestrial wildlife species of concern: The siting corridors (representing areas of potential new ground disturbance such as access roads, turbine pads, and laydown yards) are the analysis area in order to capture all potential native habitat converted to Project-related features and to provide context for overarching changes to the landscape such as habitat fragmentation. This analysis area is transferable to disturbance-specific analysis when Project infrastructure is categorized and differentiated during analysis.
- Potential for equipment collisions for nongame, small game, big game, special-status species, and aquatic and terrestrial wildlife species of concern: The siting corridors are the analysis area to capture any potential for impacts from disturbance such as vehicle collisions.
- Human-activity disturbances for nongame, small game, big game, special-status species, and aquatic and terrestrial wildlife species of concern: The siting corridors are the analysis area to capture any potential for impacts from disturbance such as noise.
- Potential alterations in stream flow from water withdrawal and impacts to water quality, and thus aquatic habitat, for fisheries and other aquatic species: The subwatersheds in which the Project Area lies are the analysis area because they encompass a reasonable downstream extent for consideration of secondary effects on water quantity that could result from Project construction and operations. This analysis area comprises two subwatersheds, the Harney Creek-Laramie River and Dale Creek subwatersheds, and they fall within both the South Platte and North Platte hydrologic subregions in the Missouri region.

3.4.4 Baseline Description

The “Biological Resources Evaluation” (Tetra Tech 2020d) technical report prepared for the Project provides background information on the habitat types and wildlife resources present within the Project Area. Specifically, it describes the Project Area as split between two EPA Ecoregions, the Laramie Basin and Crystalline Mid-Elevation Forests Level IV Ecoregions (Chapman et al. 2004). The Laramie Basin Ecoregion encompasses much of the western portion of the Project Area and consists of an intermontane valley with mixed-grass prairie. The Crystalline Mid-Elevation Forests Ecoregion constitutes the central and eastern portions of the Project Area and consists primarily of mountain slopes and outwash fans containing Ponderosa pine forest with areas of Douglas-fir forest. Vegetation communities that occur within the Project Area, and more specifically the siting corridors, are discussed and analyzed in detail in section 3.14, “Vegetation.”

Because the Project includes a variety of habitat types within two ecoregions, a diversity of species has the potential to occur within the Project Area. Below is a brief description for each of these major groups of animals.

3.4.4.1 Nongame Species

Nongame species are the most varied and abundant of the five major species groups addressed. They consist of reptiles, nongame mammals (not including bats; see section 3.5, “Avian and Bat Species”), and terrestrial invertebrate species. Nongame species expected to occur in the analysis area include bullsnake (*Pituophis catenifer*), several species of small rodent (e.g., Ord’s kangaroo rat [*Dipodomys ordii*]), and northern raccoon (*Procyon lotor*) among others. Nongame species observed in the analysis area during field-based surveys include coyote (*Canis latrans*), swift fox (*Vulpes velox*), striped skunk (*Mephitis mephitis*), least chipmunk (*Tamias minimus*), thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*), Wyoming ground squirrel (*Urocitellus elegans*), wandering gartersnake (*Thamnophis elegans*), North American porcupine (*Erethizon dorsatum*), and white-tailed jackrabbit (*Lepus townsendii*) (Tetra Tech 2020d, 2020e, 2020f). Invertebrates are likely the most diverse and abundant group of animals that inhabit

the analysis area, which has the potential to support a multitude of invertebrates such as butterflies, moths, beetles, and bees.

3.4.4.2 Small Game Species

A variety of common small game mammal species inhabit the southern Wyoming shrublands and forest vegetation communities that constitute the analysis area. Small game species likely to occur in the analysis area include furbearers such as American badger (*Taxidea taxus*), American mink (*Vison vison*), and desert cottontail (*Sylvilagus audubonii*) (Crowe 1986). Small game species observed in the analysis area during field-based surveys include bobcat (*Lynx rufus*) (Tetra Tech 2020e). Avian game species are addressed in section 3.5, “Avian and Bat Species.”

3.4.4.3 Big Game Species

Big game are ungulate species managed for hunting and recreational purposes. Habitat for elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*) is present within the analysis area, and all three species were observed in the analysis area during the field-based habitat assessment (Tetra Tech 2020d). Additionally, the WYGFD has mapped moose (*Alces alces*) year-long range and white-tailed deer (*Odocoileus virginianus*) nonwinter range within the analysis area.

WYGFD defines and manages big game seasonal habitats in Wyoming to promote species survivorship and has delineated seasonal ranges for all three big game species confirmed present in the analysis area, including year-long range, crucial winter range, and parturition (i.e., fawning or calving) areas. Crucial winter range is habitat used by big game in the harsh winter months when resources are scarce and functions as a determining factor in the population’s ability to maintain itself over the changing seasons, whereas migration corridors are areas used by big game for seasonal movements between summer and winter ranges. Mule deer is currently the only big game species with State-designated migration corridors; the State-designated mule deer migration corridor does not overlap the analysis area. The big game analysis area contains the following big game seasonal habitats:

- Crucial winter/year-long range: mule deer

No big game species have mapped parturition areas in the analysis area. Big game species with mapped range in the analysis area (elk, mule deer, pronghorn, moose, and white-tailed deer) have associated HMUs designated by the WYGFD that overlap the analysis area. Additionally, bighorn sheep (*Ovis canadensis*) constitute an HMU that overlaps the analysis area, although this species is not expected to occur based on the level topography and open habitat types that largely make up the Project Area.

3.4.4.4 Fisheries and Other Aquatic Species

This section addresses fish and other aquatic species groups such as amphibians, crustaceans, and mollusks known to occur or with potential to occur in the streams, herbaceous wetlands, and wet meadow habitat types within the Project Area. Named stream features in the Project Area include Government Creek, Forest Creek, Boulder Creek, Willow Creek, Fish Creek, Dale Creek, and Pump Creek. Of these named streams, four are considered perennial streams (Willow Creek, Fish Creek, Dale Creek, and Pump Creek). Perennial streams are more likely to support aquatic species populations than intermittent or ephemeral hydrological features because of year-round stream flow. Additionally, the Project Area contains 79.6 acres of wetland. See section 3.15, “Wetland and Water Resources,” for additional discussion on hydrological features and wetland habitat in the Project Area.

Within the analysis area, the following fish species have the potential to occur within the streams and associated tributaries: brassy minnow (*Hybognathus hankinsoni*), common shiner (*Luxilus cornutus*), white

sucker (*Catostomus commersonii*), Johnny darter (*Etheostoma nigrum*), brook trout (*Salvelinus fontinalis*), longnose sucker (*Catostomus catostomus*), and creek chub (*Semotilus atromaculatus*) (Baxter and Stone 1995). Aquatic invasive species that have the potential to occur within the streams and associated tributaries of the analysis area include brook stickleback (*Culaea inconstans*); this species spread into Wyoming through bait introductions, accidental introductions with aquaculture species, and via water currents (WYGFD 2014). See section 3.11.4.2, “Fishing,” for discussion on recreational fisheries.

Amphibian species groups expected to occur in the analysis area include frogs, toads, and salamanders (Baxter and Stone 1985). One amphibian species, the western tiger salamander (*Ambystoma mavortium*), was observed during field-based habitat assessments (Tetra Tech 2020d). Aquatic invertebrates expected to occur in the analysis area include northern crayfish (*Orconectes virilis*) (Durland Donahou 2020).

3.4.4.5 Special-Status Species

Special-status species include those listed as threatened, endangered, or candidate species under the ESA. Seven ESA-listed wildlife and plant species have the potential to occur within the analysis area or to be impacted by Project activities (table 3-10). No critical habitat for federally listed species is present in the analysis area.

Table 3-10. Special-Status Wildlife and Plant Species with Potential to be Impacted by the Project

Common Name	Scientific Name	Listing Status	Potential for Impact ¹
Pallid sturgeon ²	<i>Scaphirhynchus albus</i>	Endangered	Unlikely
Piping plover ²	<i>Charadrius melodus</i>	Threatened	Unlikely
Preble’s meadow jumping mouse ³	<i>Zapus hudsonius preblei</i>	Threatened	Low
Western prairie fringed orchid ²	<i>Platanthera praeclara</i>	Threatened	Unlikely
Whooping crane ²	<i>Grus americana</i>	Endangered	Unlikely
Wyoming toad	<i>Anaxyrus baxteri</i>	Endangered	Unlikely

Source: Tetra Tech (2020d); FWS (2019a).

Note: FWS (2019a) includes interior least tern (*Sternula antillarum*); however, that population was delisted in January 2021 (FWS 2021a) and is not carried forward for analysis.

¹ Potential for Impact: Unlikely—species’ range does not overlap with Project and/or no suitable habitat in the Project Area, and/or no downstream Platte River impacts; Low—species’ range overlaps with the Project and marginally suitable habitat in the Project Area; Moderate—species’ range overlaps with the Project and suitable habitat present in the Project Area; High—species’ range overlaps with the Project and highly suitable habitat in the Project Area, and/or known populations/observations within the Project Area.

² Platte River species.

³ Although moderately suitable habitat is present, the species is not known to occur in the Project Area.

Most species in table 3-10 are unlikely to be affected by Project activities; this is because habitat in the analysis area is not suitable for the species and/or the analysis area is not within the species’ known range, or the species is considered a Platte River Species. Platte River Species are threatened and endangered species potentially inhabiting the downstream reaches of the Platte River system outside Wyoming (FWS 2019b). In 1997, Colorado, Wyoming, Nebraska, and the Department of the Interior partnered together to develop the Platte River Recovery Implementation Program. Under the Platte River Recovery Implementation Program, projects that include water-related activities in the Platte River Basin that have a Federal nexus may be subject to consultation under Section 7 of the ESA. These activities include new or expanded wells, reservoirs, or diversions whose water supply is solely derived from sources that are considered hydrologically connected to the Platte River and that meet or exceed the *de minimis* threshold of 0.1 acre-foot per year of depletions in flow to the nearest surface water tributary to the Platte River system. It is anticipated that any water-related activities associated with the Project would be covered under the Wyoming Depletions Plan. Water for the Project would be obtained by entering into temporary water use agreements with landowners with existing water sources within or near the Project, and/or from drilling new wells from areas that have been determined to not be hydrologically connected to the Platte River system

(Cowley 2020). Once final water sources have been identified for Project construction, ConnectGen would coordinate with the Wyoming State Engineer's Office, and the FWS on any source that may be hydrologically connected to the Platte River Basin to determine the need for consultation and completion of a tiered biological opinion under the Wyoming Depletions Plan. The Wyoming toad is known only from Mortensen Lake National Wildlife Refuge (NWR) and two private properties covered under the Wyoming Toad Safe Harbor Agreement (FWS 2015). The analysis area is not within the historical range of Wyoming toad (FWS 2015), and the nearest population is approximately 15 miles northwest at the Mortensen Lake NWR. As such, impacts to this species are not anticipated and it was not brought forward for impact analysis.

Preble's meadow jumping mouse is a small rodent that inhabits riparian areas with dense herbaceous and shrub cover, typically adjacent to undisturbed grassland communities and a nearby water source. Suitable riparian habitat typically includes a dense combination of grasses, forbs, and shrubs that provide adequate cover with the potential for a tree and shrub canopy often associated with willow (*Salix* sp.), and occasionally aspen (*Populus tremuloides*) or spruce (*Picea pungens*) in montane areas (FWS 2018). It has been found to regularly use uplands at least as far out as 328 feet beyond the 100-year floodplain, though these upland habitats are extremely variable and range from open grasslands to woodlands (FWS 2018, 2020a). The Preble's meadow jumping mouse has been found within the North Platte, South Platte, and Arkansas River drainages of Colorado and Wyoming (FWS 2008a), and its range extends along the eastern flank of the Rocky Mountains from Douglas, Wyoming, to Colorado Springs, Colorado, below 8,100 feet in elevation in Wyoming (FWS 2018). Based on trapping conducted between 1989 to 2014, there are no capture records of Preble's meadow jumping mouse within the Project Area, though there are records of positive capture approximately 1.2 miles southeast of the Project Area in 1998 (FWS 2018; Tetra Tech 2020g). The FWS was unable to confirm whether genetic confirmation of the 1998 capture was conducted (Tetra Tech 2020g), although it is included the FWS's recovery plan (FWS 2018), whereas other purported historic Preble's meadow jumping mouse captures were not.

During the September 2019 field reconnaissance, several areas of dense herbaceous riparian vegetation suitable for Preble's meadow jumping mouse habitat were observed in the analysis area (Tetra Tech 2020d). These habitat areas were generally restricted to portions of the perennial stream features within the Project Area (section 3.4.4.4 "Fisheries and Other Aquatic Species") where well-developed wetland fringes, a shrub/tree canopy, and adjacent grasslands were present. Results of a Preble's Meadow Jumping Mouse Habitat Suitability Assessment conducted for the Project indicate that nine locations out of 25 surveyed within the Project Area have moderate to moderately high habitat suitability for the Preble's meadow jumping mouse (Tetra Tech 2020g). None of the 25 survey locations were recorded as having high habitat suitability for the Preble's meadow jumping mouse. The 25 survey locations were established in areas where potential disturbance activities may occur and by using results of an initial desktop analysis in combination with results of a field-based surface water resources reconnaissance conducted for the Project.

No Preble's meadow jumping mouse individuals were observed during the habitat suitability assessment for the Project. Trapping in 2009 and 2013 along Dale Creek north of the Project Area and Johnson Creek within the Project Area, respectively, found only the western jumping mouse (*Zapus hudsonius*) (Tetra Tech 2020g). These creeks are both in the South Platte drainage. The 2013 trapping reportedly found Preble's meadow jumping mouse along the Laramie River north of the Project Area (Tetra Tech 2020g); however, the FWS did not include those detections in its 2018 recovery plan (see figure 2 in FWS 2018), apparently reversing its earlier assessment of Preble's meadow jumping mouse distribution in Albany County (see figure 1 in FWS 2007a). Regardless, the Laramie River is in the North Platte drainage and not hydrologically connected to survey locations exhibiting suitable habitat in the Project Area, which are located in the South Platte drainage, precluding connectivity with any potential Preble's meadow jumping mouse source population along the Laramie River.

3.4.4.6 Species of Concern

Aquatic and terrestrial wildlife species of concern are those species listed as SGCN under the Wyoming SWAP and/or as Species of Concern (SOC) by the Wyoming Ecological Services Field Office (WYESFO), which provides biological advice to Federal and State agencies, industry, and members of the public concerning the conservation of fish and wildlife and their habitat that could be affected by development activities (FWS 2020b). An extensive list of reptile, amphibian, fish, mammal, and game species of concern potentially occurring within the analysis area is provided in the Biological Resources Evaluation developed for the Project (Tetra Tech 2020d).

There are 32 Wyoming SGCN and one WYESFO aquatic and terrestrial SOC with potential to occur in the analysis area (table 3-11). Only one of these SGCN species (Wyoming toad) is a Tier I conservation priority.

Table 3-11. Aquatic and Terrestrial Wildlife Species of Concern with Potential to Occur in the Project Area

Common Name	Scientific Name	Status	Recorded During Field-Based Habitat Assessment
Mammals			
American pygmy shrew	<i>Sorex hoyi</i>	SGCN Tier III	No
Abert's squirrel	<i>Sciurus aberti</i>	SGCN Tier III	No
Eastern spotted skunk	<i>Spilogale putorius</i>	SGCN Tier II	No
Moose	<i>Alces americanus</i>	SGCN Tier II	No
Olive-backed pocket mouse	<i>Perognathus fasciatus</i>	SGCN Tier III	No
Plains harvest mouse	<i>Reithrodontomys montanus</i>	SGCN Tier II	No
Plains pocket mouse	<i>Perognathus flavescens</i>	SGCN Tier III	No
Sagebrush vole	<i>Lemmiscus curtatus</i>	SGCN Tier II	No
Swift fox	<i>Vulpes velox</i>	SGCN Tier II	Yes
Uinta chipmunk	<i>Tamias umbrinus</i>	SGCN Tier III	No
Western spotted skunk	<i>Spilogale gracilis</i>	SGCN Tier III	No
White-tailed prairie dog	<i>Cynomys leucurus</i>	SGCN Tier II, SOC	No
Amphibians			
Northern leopard frog	<i>Lithobates pipiens</i>	SGCN Tier II	No
Plains spadefoot toad	<i>Spea bombifrons</i>	SGCN Tier II	No
Western tiger salamander	<i>Ambystoma mavortium</i>	SGCN Tier III	Yes
Wyoming toad	<i>Anaxyrus baxteri</i>	SGCN Tier I	No
Reptiles			
Plains gartersnake	<i>Thamnophis radix</i>	SGCN Tier III	No
Prairie rattlesnake	<i>Crotalus viridis</i>	SGCN Tier III	No
Red-sided gartersnake	<i>Thamnophis sirtalis parietalis</i>	SGCN Tier III	No
Fish			
Brassy minnow	<i>Hybognathus hankinsoni</i>	SGCN Tier III	No
Common shiner	<i>Luxilus cornutus</i>	SGCN Tier III	No
Iowa darter	<i>Etheostoma exile</i>	SGCN Tier II	No
Crustaceans			
Calico/papershell crayfish	<i>Orconectes immunis</i>	SGCN Tier III	No
Constricted fairy shrimp	<i>Branchinecta constricta</i>	SGCN Tier II	No
Couse tadpole shrimp	<i>Lepidurus couesii</i>	SGCN Tier III	No
Longtail tadpole shrimp	<i>Triops longicaudatus</i>	SGCN Tier III	No

Common Name	Scientific Name	Status	Recorded During Field-Based Habitat Assessment
Mollusks			
Ash gyro	<i>Gyraulus parvus</i>	SGCN Tier III	No
Forest disc	<i>Discus whitneyi</i>	SGCN Tier III	No
Marsh rams-horn	<i>Planorbella trivolvis</i>	SGCN Tier III	No
Prairie fossaria	<i>Fossaria bulimoides</i>	SGCN Tier III	No
Quick gloss snail	<i>Zonitoides arboreus</i>	SGCN Tier III	No
Umbilicate sprite	<i>Promenetus umbilicatellus</i>	SGCN Tier III	No

Sources: Tetra Tech (2020d, 2020e); WYGFD (2017b); FWS (2020b).

Note: SGCN Tier I = highest priority, SGCN Tier II = moderate priority, SGCN Tier III = lowest priority.

The western tiger salamander (SGCN Tier III) and swift fox (SGCN Tier II) were observed within the analysis area during field-based surveys (Tetra Tech 2020d, 2020e). Observations of northern leopard frog (SGCN Tier III) have also been recorded in the Project Area, although this species was not recorded during field-based surveys for the Project (Losch 2020). Three small white-tailed prairie dog (SGCN Tier II, WYESFO SOC) colonies, totaling approximately 0.5 acre, were observed in the northwestern part of the Project Area during field surveys for the Hermosa West Wind Farm Project (WAPA 2012). These three previously recorded prairie dog colonies were not observed within the siting corridors during the September 2019 field reconnaissance (Tetra Tech 2020d).

3.4.5 Impacts to Resource

This section describes the potential impacts to aquatic and terrestrial wildlife and special-status species from the construction, O&M, and decommissioning of the Project.

3.4.5.1 Impact Indicators

The following impact indicators were assessed to determine expected impacts to aquatic or terrestrial wildlife special-status species from construction, O&M, or decommissioning of the Project:

- Acres of terrestrial habitat lost because of construction-related and operations-related ground disturbance or because of clearing of vegetation during construction, and the presence of Project-related infrastructure during operations.
- Miles of new access roads that could lead to habitat fragmentation, increased risk of vehicular collisions, and potential for mortality during construction activities.
- Miles of new transmission line that could lead to increased predation risk.
- Number of stream crossings and river miles affected within 164.0 feet (50 m) upstream to 656.2 feet (200 m) downstream of stream crossings that could affect aquatic species habitat. Stream crossings are buffered to account for potential secondary effects to aquatic species habitat both upstream and downstream from construction and operations activities.

Effects on aquatic and terrestrial wildlife and special-status species are considered at the individual, community, and population levels for species.

3.4.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to aquatic and terrestrial wildlife and special-status species:

- The potential for species occurrence in the analysis area was evaluated based on publicly available data, field-based technical reports, and observed habitat.
- Big game habitat, including crucial winter range, parturition areas, seasonal ranges, and migration corridors were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or would deter big game from using the area. Although critical habitat is a legal and ecological designation within the ESA that identifies specific habitat boundaries as critical to the recovery of a species, crucial range is an ecological definition that describes a seasonal range or habitat component (often winter or winter/year-long range in Wyoming) that functions as a determining factor in a population's ability to maintain itself over the long term (WYGFD 2015).
- The boundaries of HMUs were reviewed to determine if Project infrastructure (siting corridors and access roads) and construction activities would displace big game species, fragment habitat, or decrease survival of individual animals.
- Stream and river locations were mapped with Project infrastructure (siting corridors and access roads) and technical reports were reviewed to identify important aquatic resources in the Project Area and determine if the Project would affect native fisheries and aquatic resources.
- Sources of water required for water-consumptive Project activities and the methods, amount, duration, and location (i.e., hydrologic basin) of water withdrawal during construction and operations was evaluated to determine effects on aquatic species habitat during construction and operations.
- Natural histories of nongame species, small game species, and fish and other aquatic species expected to occur in their respective analysis areas were evaluated to determine if Project construction and operations would result in habitat loss or specific effects on each species group.
- Habitat for special-status species and aquatic and terrestrial wildlife species of concern were mapped with the Project Area and Project infrastructure (siting corridors and access roads) to identify habitat in the analysis areas and determine if the Project would result in population declines for any such species.

3.4.5.3 Proposed Action

Issue Statement #1: Would Project construction and operations lead to decreases in available habitat for big game species affecting crucial season survivorship, causing displacement, and ultimately affecting herd management units within the analysis area?

Project construction and operations activities would have the potential to cause stress or displace big game from parts of their crucial winter range and seasonal ranges for the duration of the activity. The intensity of big game avoidance would depend on the scale of the activity, proximity to big game use areas, and the seasonal timing of construction activities. Big game species would be further affected by Project construction and operations if there were a loss of important seasonal ranges and by the timing of construction activities. Vegetation removal and ground disturbance during construction and the presence of O&M-related infrastructure would reduce habitat for big game within the analysis area. See section 3.14, "Vegetation," for discussion on impacts to vegetation resources, and thus habitat, from construction and operations of the Project. The fitness and survivorship of individual animals or groups of animals could be reduced if they are displaced from critical or seasonal habitats during sensitive periods by construction activities.

Design features and EPMs (section 2.2.6, “Environmental Protection Measures”) for aquatic and terrestrial wildlife would reduce loss of important habitats from construction and operations activities. Important wildlife habitats, such as surface water, wetlands, and riparian areas, would be avoided to the greatest extent practicable to minimize the loss of these critical landscape features (GEN-2, Wildlife [WL]-10). Construction activities would be avoided between November 15 and April 30 in areas of mule deer crucial winter range (WL-10). Additionally, ground-disturbance activities would be limited to the minimum amount necessary to safely construct Project facilities (Geology and Soils [GEO]-1), and construction travel would be restricted to existing roads and permanent or temporary access roads (GEN-3). Prior to the start of construction, a Weed Management Plan and Reclamation Plan would be developed to guide the management of noxious weeds during construction and operations activities, and reclamation of disturbed areas that do not contain operations infrastructure would occur following the construction process using locally approved, weed-free, native seed mixes (Vegetation [VEG]-3, VEG-4).

The Project Area intersects crucial or seasonal habitat and year-long habitats for big game. During construction of the Project, ground-disturbance activities in big game habitat would temporarily prevent big game from foraging, resting, migration, or parturition; big game would likely return to these areas when construction activities are over or when these areas have been reclaimed. Ground disturbance in big game habitat would temporarily remove vegetation cover, reducing forage resources until reclamation successfully reestablishes vegetation cover. The installation of underground collection lines and the use of crane paths would affect big game habitat during the construction stage only, whereas the construction and use of access roads and substations would affect habitat during construction and O&M.

Mule deer, moose, white-tailed deer, pronghorn, and elk HMUs completely overlap the analysis area (i.e., the Project Area): approximately 1.6 percent of the Sheep Mountain mule deer HMU, approximately 0.6 percent of the Snowy Range/Sierra Madre moose HMU, approximately 0.3 percent of the Southeast Wyoming white-tailed deer HMU, and approximately 2.9 percent of the Centennial pronghorn HMU overlap the analysis area. Approximately 0.9 percent and 0.6 percent of the Iron Mountain and Snowy Range elk HMUs, respectively, overlap the analysis area. The Douglas Creek bighorn sheep HMU overlaps approximately 13,567 acres (0.9 percent of the total HMU) within the analysis area southwest of U.S. 287. The only big game species with WYGF D-mapped crucial winter range in the analysis area is mule deer (figure 3-4). In total, there are approximately 1,651 acres of mule deer crucial winter range in the analysis area, of which approximately 292 acres (17.7 percent) falls within the siting corridors. This is approximately 0.001 percent of the total mapped crucial winter mule deer range in Wyoming. Considering the percentage of impacts relative to available habitat, big game individuals would be impacted by Project construction and operations, but impacts would not be anticipated at the population or community levels.

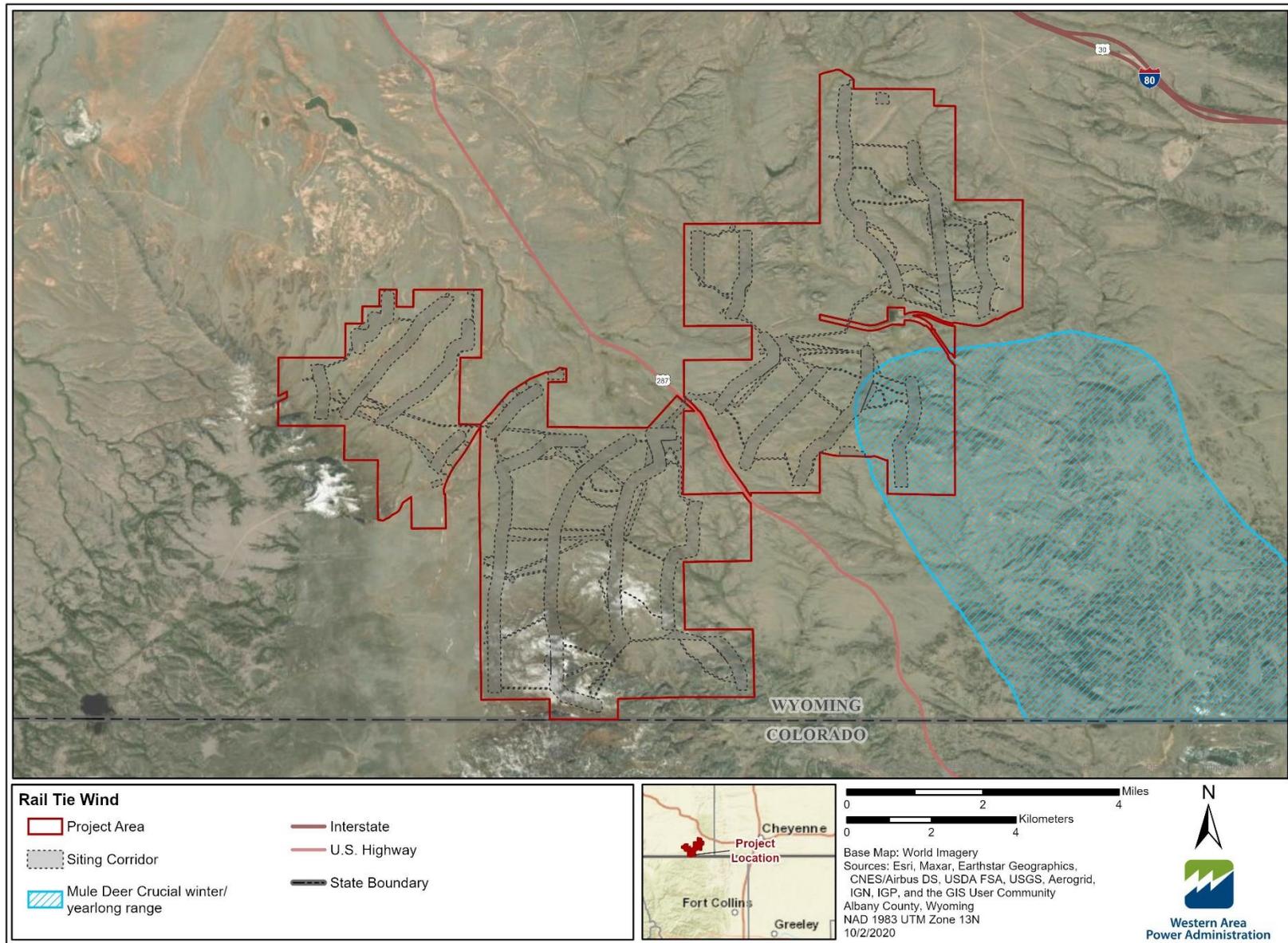


Figure 3-4. Mule deer crucial winter range in the Project Area.

Issue Statement #2: Would big game species be affected by habitat fragmentation, increased activity, and vehicular traffic during construction and operations of the Project?

Habitat fragmentation is linked to reductions in population sizes and connectivity, leaving species more vulnerable to demographic or environmentally stochastic events (World Conservation Monitoring Centre 1992; Burkey and Reed 2006), although level of sensitivity to habitat fragmentation differs by taxonomic group and even by species within the same taxonomic group (Prugh et al. 2008). Effects from habitat fragmentation would be expected where ground disturbance occurs, specifically where operational Project features would be built such as turbine generators, access roads, met towers, the O&M building, and transmission line structures. Habitat fragmentation could result in the physical separation of wildlife individuals within a given population and separation of groups of individuals, potentially limiting reproductive effectiveness and gene flow within and between populations (World Conservation Monitoring Centre 1992). Fragmentation could also alter wildlife communities, as species more adaptable to human disturbances establish themselves, whereas species requiring undisturbed, contiguous habitat could relocate or experience higher mortality from competition or predation. These effects vary by species, with some species affected more than others, and have the potential to cause population declines.

Project infrastructure, noise, and other human-activity disturbances associated with construction and operations of the Project, such as the presence of construction workers or facility personnel, could limit mobility of wildlife, disrupt life-cycle activities because wildlife species may avoid work areas during construction activities and operational facilities such as buildings, and increase energy expenditure. Although wildlife preexisting in proximity to human disturbance could already be habituated to roads, noise, and other human-activity disturbances, changes to these baseline activities could still result in an increased expenditure of energy during critical life stages because sensitivity to disturbance varies by species, and the intensity of species avoidance depends on the scale of the human activity.

Research on big and small game avoidance of wind turbines during operations is limited (Lovich and Ennen 2013; Smith et al. 2020). A recent study on pronghorn response to wind energy development found that during winters, pronghorns avoided operational wind turbines within their winter home ranges (Smith et al. 2020); however, this study concluded that additional, long-term studies are needed. A 2017 study (Sawyer et al. 2017) on mule deer demonstrated long-term avoidance of oil and gas infrastructure, which could have some applicability to other energy infrastructure, including WTGs. Conversely, observations and studies of big game at operating wind facilities have demonstrated that big game species do not necessarily abandon habitats within or adjacent to wind energy facilities (Tetra Tech 2020d; Walter et al. 2004). The Walter et al. study (2004) is the only known study assessing the direct impact of wind energy development on elk. While the authors note that extrinsic factors (e.g., forage availability) may have played a larger role in elk response than the wind facility development, the Wildlife Protection Recommendations for Wind Energy Development in Wyoming (WYGFD 2010) note that other factors such as prior habituation to human presence, existing habitat fragmentation, and non-migratory status of the studied elk herd could also be factors and are not representative of Wyoming's migratory elk herds. As such, some elk are expected to avoid the Project Area during construction; however, Project activities and resulting avoidance would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, "Operations and Maintenance Activities." For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated activities and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are active on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation.

Construction of the Project, specifically increased vehicle and equipment traffic on new and existing access roads or during surface-disturbing activities, has the potential to increase the risk of vehicular collisions or compaction by construction equipment. A review of existing literature contends that roads and the associated human presence are generally associated with negative effects on biotic integrity in both terrestrial and aquatic ecosystems (Trombulak and Frissell 2000). These potential effects would be significantly reduced with the completion of construction activities but would not altogether cease as ongoing O&M activities necessitate the use of access roads.

EPMs relative to minimizing impacts from habitat loss, discussed above in Issue Statement #1, are also applicable to minimization of effects from habitat fragmentation. Further EPMs would be put in place to reduce the likelihood of vehicular collisions with wildlife through the establishment of a speed limit of 25 miles per hour (mph) on access roads (GEN-4). Additionally, construction vehicles and equipment would be maintained in proper operating condition and would be equipped with manufacturers' standard noise control devices or better (e.g., mufflers or engine enclosures), and blasting or hydraulic hammering would be limited to daylight hours (NOISE-1, NOISE-3).

The effects of habitat fragmentation correlates to ground disturbance within the analysis area during the construction and operations of the Project (see table 2-1). Because big game species occurring in the analysis area would still be able to cross access roads and other Project-related infrastructure effectively, habitat fragmentation from construction and operations is not likely to affect communities or populations; however, individuals would be at increased risk of vehicular collision.

Potential effects from noise and other human-activity disturbances would generally vary by species group. For example, research in Wyoming has demonstrated that big game species that are consistently exposed to noise and human activity become desensitized and rarely modify their behavior when these disturbances occur (Brown et al. 2012). But meta-analysis studies have demonstrated that anthropogenic noise regularly adversely affects a wide range of species from a variety of taxonomic groups (Kunc and Schmidt 2019). Given the sporadic and localized nature of Project-related noise and other human-activity disturbances, the associated effects are likely to affect individuals of a species rather than communities or populations; these effects could lead to reproductive failure for one season or to increased stress on individuals, which could affect their overall ability to survive. These effects would be considerably reduced with the completion of construction activities but would not altogether cease as operations activities would necessitate ongoing human presence in the analysis area.

Acres of ground disturbance during construction represent the potential for equipment compaction, and miles of new access road represent the potential for vehicle or equipment collisions (see table 2-1). See section 3.13, "Transportation and Access," for a discussion on anticipated vehicle and road use for the Project. Mortality from vehicle collision or equipment compaction would be infrequent but would affect individuals of a species. Vehicle impacts are more likely to occur during Project construction because of higher traffic volume on access roads and active displacement of individuals by construction activities. Vehicle impacts are not anticipated to affect communities or populations of a species.

Issue Statement #3: Are construction activities expected to affect native fisheries and other aquatic resources within the analysis area?

Potential adverse effects on fisheries and other aquatic species subwatersheds from the Project are loss or degradation of habitat. Fish and other aquatic species would be affected by Project construction if there are effects on water quality and quantity within the Harney Creek-Laramie River and Dale Creek subwatersheds (analysis area). Construction across stream channels or other waterbodies could affect native fisheries and other aquatic resources by increasing turbidity and sedimentation, increasing salinity, or by potential introduction of aquatic invasive species, which could degrade aquatic habitat. See section 3.15, "Wetland and Water Resources," for additional discussion on how turbidity, sedimentation, and increases in salinity affect water resources more generally.

Environmentally sensitive areas in or adjacent to the Project Area, including wetlands and aquatic habitat, would be delineated and avoided to minimize impacts to these areas during construction and operations (GEN-2). Wetland and aquatic resource boundaries would be clearly identified on all construction plans and would be posted with signs and flagging in the field (Water Quality [WQ]-4). Prior to the start of construction, a Stormwater Pollution Prevention Plan (SWPPP) would be developed to detail erosion control measures, such as placement of barriers such as silt fencing, fiber logs, and/or hay bales, which would be implemented to minimize sediment transport and deposition in wetlands and aquatic habitats (WQ-6, WQ-8). Waterbody crossings would incorporate WYGFD design specifications and professional engineering standards, as applicable (WQ-11). Water quality best management practices would be implemented at waterbody crossings to minimize any unforeseen impacts to the Platte River system's watershed and associated vegetation communities (WQ-13). Site-specific BMPs would be determined based on the proposed activities at each waterbody crossing. ConnectGen would reference agency guidance, such as the WYDEQ's "Stream and Lakeshore Restoration Best Management Practice Manual" (WYDEQ 2014) in selecting applicable BMPs. Potential BMPs include application of vegetation management practices, soil stabilization, and evaluation and modification as needed. Open-bottom culverts would be used where appropriate (such as where fish passage is a concern) to avoid changing stream morphology or removing suitable fish habitat. In addition, waterbody crossings and culverts would be constructed in a manner that prevents sediment erosion and deposition and minimizes impacts to any environmentally sensitive areas (WQ-9) consistent with WYGFD and WYSEO requirements. Furthermore, the implementation of vegetation restoration activities during and after construction of the Project would minimize potential erosion. But if initial restoration activities were not successful, erosion could continue to impact water quality for fish and aquatic species until vegetation could re-establish itself naturally.

Construction activities could cause runoff resulting in fine sediments entering the water source, which could increase sedimentation and turbidity; the severity would be dependent upon soil type, soil moisture, weather events, and the magnitude of disturbance and its proximity to the water source. Salinity could increase in aquatic habitats if the soils being disturbed within the watershed are saline soils and are transported into water resources. There are seven perennial stream crossings associated with construction of the Project, and approximately 454.6 linear feet of perennial stream crossing (see section 3.15.5.3, "Proposed Action," for additional discussion on impacts to surface water). Although stream crossings during construction activities could cause sedimentation or increased salinity that adversely affect aquatic species habitat, the effects would dissipate shortly after the construction activity ceased and once sediment was allowed to settle. Such effects are not anticipated to be of a magnitude to create far-reaching downstream effects on aquatic species habitat. For stream crossings where operations-related features are sited, appropriate EPMs such as the use of open-bottom culverts to aid fish passage and BMPs for erosion and sedimentation control would decrease the intensity of effects. Analyses have demonstrated that adequately sized, open-bottom arch culverts are very good for fish passage because they allow natural streambed material to be maintained in new installations (Federal Highway Administration 2007). Movement of construction equipment between stream crossings could create the potential for the spread of aquatic invasive species from one body of water to another, adversely affecting aquatic species habitat in the analysis area for the native species present. Appropriate BMPs such as inspecting and cleaning construction equipment, and minimizing use of equipment within active stream channels, would be implemented to mitigate these effects. As such, effects on aquatic species are not expected at the population or community level but are possible at the individual level.

Issue Statement #4: Are construction activities expected to require water withdrawals, and if so, how might such activities affect native fisheries and aquatic resources within the analysis area?

As discussed in section 3.4.4.5 “Special-Status Species,” no new water depletions are expected for the Project. It is conservatively anticipated that the volume of water required for construction of the Project would not exceed 200 acre-feet over the course of an 18-month construction period. An estimated 10 acre-feet would be used for mixing concrete, and the remainder would be used for civil activities (e.g., dust control, road compaction). Water required for construction could be acquired by entering into temporary water use agreements with landowners with existing water sources or by drilling temporary water wells that are not hydrologically connected to the Platte River so that no new depletions to the Platte River occur during construction. During operations, water use would be minimal and would occur at the O&M building for restrooms and washing; Project operations are estimated to consume less than 2 acre-feet of water per year. No new Platte River water depletions are expected for Project construction or O&M; water for the Project would be obtained by entering into temporary water use agreements with landowners with existing water sources in or near the Project Area, drilling new wells in areas not hydrologically connected to the Platte River system, purchasing from an off-site source within Albany County, or a combination thereof. As such, effects on aquatic species from water withdrawals are not expected at the individual, population, or community levels. For a discussion on potential effects on Blue Ribbon and Red Ribbon streams in the analysis area, and resultant effects on fisheries, see section 3.11.4.2, “Fishing.”

Issue Statement #5: Would nongame species be affected by habitat loss and fragmentation, increased activity, and vehicular traffic during construction and operations of the Project resulting in population declines?

Potential adverse effects on nongame species from the Project include loss, degradation, and/or fragmentation of habitat; loss of important habitat features such as burrows or riparian areas; vehicle collisions; compaction from construction equipment; and increased noise and disturbance levels. Nongame species would be further affected by Project construction and operations if there is an increase in predation because of new perching opportunities and nesting habitat for avian predators along the 345-kV electric transmission line and aboveground collection lines. Effects on invertebrates would be similar to those described above, such as habitat loss. See section 3.14, “Vegetation,” for a discussion on impacts to vegetation resources, and thus habitat, from construction and operations of the Project.

In order to avoid attracting scavengers such as common ravens (*Corvus corax*) that could opportunistically use transmission line structures as perches, Project trash and refuse would be disposed of in designated, covered waste receptacles and regularly removed from the Project Area (WL-5).

Habitat loss and fragmentation from transmission line construction would have a greater impact to invertebrates with very limited geographic distributions, limited localized populations, and specific foraging and reproductive requirements. Transmission line structures are landscape features during operations, so associated effects from increases in mortality from avian predators would only occur during the operations stage of the Project. Adverse effects on invertebrates could occur at the individual, community, and population level, depending on species. Impacts from construction and O&M of the Project are not expected to result in population or community level declines for nongame species given the relatively small amount of disturbance compared to available habitat.

Issue Statement #6: Would small game species be affected by habitat loss and fragmentation, increased activity, and vehicular traffic during construction and operations and maintenance of the Project resulting in population declines?

Potential adverse effects on small game species during construction and O&M of the Project would include habitat loss, degradation, and/or fragmentation; loss of important habitat features such as burrows or riparian areas; mortality from vehicle collisions; compaction from construction equipment; and increased noise and disturbance levels. Small game species could also experience increased predation risk as discussed above for nongame species. Although potential adverse effects would affect individuals, population or community level declines would not be expected because small mammal species generally have high reproductive rates sufficient for them to repopulate an area after construction. Impacts from construction and O&M of the Project are not expected to result in population or community level declines given the propensity for small mammal species to repopulate disturbed areas, their high reproductive rates, and the relatively small amount of disturbance compared to available habitat. See section 3.14, "Vegetation," for a discussion on impacts to vegetation resources, and thus habitat, from construction and operations of the Project.

Issue Statement #7: Would special-status species and aquatic and terrestrial wildlife species of concern be affected by habitat loss and fragmentation, increased activity, and vehicular traffic during construction and operations of the Project resulting in population declines?

Potential effects on special-status species and aquatic and terrestrial wildlife species of concern include habitat loss, degradation, and/or fragmentation; loss of important habitat features such as burrows or riparian areas; vehicle collisions; compaction from construction equipment; and increased noise and disturbance levels. In general, effects specific to species groups (i.e., big game, small game) can largely be applied to special-status species and aquatic and terrestrial wildlife species of concern that fall within those specific species groups, such as increased predation risk.

If a special-status species fatality does occur, the FWS would be notified within 24 hours of the federally listed species documented on the Project Area (WL-8). The only special-status wildlife or plant species that is being considered for impacts is the Preble's meadow jumping mouse, which was assessed as having low potential for impact in the analysis area (see table 3-10). The "Preble's Meadow Jumping Mouse Habitat Suitability Assessment" conducted for the Project indicates that there are areas of moderate to moderately high habitat suitability for the Preble's meadow jumping mouse within the Project Area (Tetra Tech 2020g), and portions of the Project Area fall within the FWS Preble's meadow jumping mouse Area of Influence (FWS 2021b). The Project Area is also within portions of, but near the edges of, the USGS Cache la Poudre hydrologic unit code (HUC) 8 recovery unit for this species (FWS 2021b). There are no capture records of Preble's meadow jumping mouse within the Project Area. The closest capture record is from 1998 and is located approximately 1.2 miles southwest of the Project Area along a tributary to Fish Creek in Larimer County, Colorado (Tetra Tech 2021a). As discussed, important wildlife habitats such as riparian areas, including moderate and moderately high suitable habitat for Preble's meadow jumping mouse, would be avoided to the greatest extent practicable to minimize the loss of these critical landscape features (GEN-2). FWS staff have been engaged for technical assistance related to this species and has identified species-specific conservation measures to which ConnectGen has committed, discussed below.

In addition to the general EPMs noted above, ConnectGen has further committed to FWS species-specific conservation measures that would be implemented at 17 locations of Project disturbance with suitable habitat during the construction of collector lines, turbine buffers, crane paths, and access road stream crossings, as appropriate (see table 2-6).

ConnectGen would implement the following construction work window considerations and modified construction within suitable habitat to avoid potential disturbance of Preble's meadow jumping mouse during both the active and hibernation period. In locations where shrub cover is present, construction would occur outside of the Preble's mouse hibernation period (November 1-April 30) when possible, and shrub removal would occur at least one week prior to construction. If ground disturbance must occur during the hibernation period (November 1 – April 30), any necessary shrub removal would be performed prior to the Preble's hibernation period, also at least one week prior to the construction. This practice would avoid potential for hibernation activities within the footprint of the proposed construction area. If Preble's mouse habitat must be affected during the active period (May 1 – October 31), vegetation that would be permanently or temporarily affected would be clipped to ground level, one to two weeks prior to initiation of construction. The vegetation clipping would remove the potential habitat elements in advance of construction and deter potential use of such area during construction activities.

ConnectGen would minimize impacts to riparian areas which provide habitat for Preble's jumping mouse by: (1) avoiding or minimizing the use of concrete, riprap, bridge footings, and other impermeable features within the stream channel and riparian or adjacent upland habitats during construction of stream crossing; (2) burying any riprap used with soil and planting with native riparian vegetation; (3) using bioengineering techniques to stabilize stream bank during construction of access road stream crossings; (4) maintaining habitat connectivity through culverts, of access roads crossing streams, by installing ledges or dry culverts adjacent to the culvert with the water flow; and (5) revegetating with native riparian vegetation and allow shrubs to grow at either end of culverts. If further micro-siting or additional crossings of potentially suitable habitat are required, these same conservation measures for the Preble's meadow jumping mouse would also be applied at those additional locations.

Based on the above noted factors that include ConnectGen's commitment to species-specific conservation measures, WAPA performed informal consultation with the FWS and has determined the Project may affect, but is not likely to adversely affect, the Preble's meadow jumping mouse (Abbott 2021).

Species of concern would experience the incremental loss of habitat (vegetation cover) and increased habitat fragmentation. In areas of ground disturbance, loss of habitat would occur until reclamation activities were completed and native vegetation successfully re-established. This is especially impactful for special-status species and aquatic and terrestrial wildlife species of concern that depend on vegetation cover, and thus habitat, that recovers slowly. Grassland and herbaceous habitat types would recover relatively quickly, whereas shrubland and forest communities would take a comparatively longer time to return to pre-disturbance cover. See section 3.14, "Vegetation," for a discussion of impacts from vegetation removal and reclamation potential. Most areas of ground disturbance would occur within threetip sagebrush (*Artemisia tripartita* ssp. *rupicola*) habitat, and the species composition of that vegetation community is favorable toward reclamation efforts; therefore, residual impacts from threetip sagebrush removal and habitat fragmentation are not anticipated to have population-level or community-level effects for any aquatic and terrestrial wildlife species of concern that require such habitat.

3.4.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.

3.4.6 Aquatic and Terrestrial Wildlife and Special-Status Species Conclusion

The Project would slightly decrease available habitat for big game species. During construction, ground disturbance would remove vegetation used by big game as forage. The noise associated with construction activities would temporarily deter big game from using available habitat. Noise and intermittent activities associated with operations would also temporarily deter big game from using available habitat. The Project Area intersects crucial or seasonal habitat and year-long habitats for big game. The WYGFD has not mapped big game migration corridors in the Project Area. Three HMUs completely overlap the Project Area, which amounts to approximately 2.4 percent of the total acreage of the three HMUs. Considering the percentage of impacts relative to available habitat in the Project Area, big game individuals would be impacted by Project construction and operation, but impacts would not be anticipated at the population or community levels. Impacts from noise and activities associated with construction and operations would cease when the activity was over, and impacts associated with ground disturbance would end when the disturbance was reclaimed as part of Project decommissioning. Habitat fragmentation would not be anticipated to affect wildlife communities or populations. Increased vehicle and equipment traffic on new and existing access roads would increase the risk of vehicle collisions. These impacts would be minimized through the establishment of a speed limit of 25 mph on access roads, and risk would be further reduced with the completion of construction activities, but would remain, at a lower level, for the duration of Project O&M. Throughout the life of the Project, most wildlife would be able to effectively cross roads during times of inactivity; vehicle mortalities would not be anticipated to affect communities or populations of a species.

Construction across or near stream channels or other waterbodies could increase turbidity, sedimentation, or salinity and potentially spread aquatic invasive species that would temporarily degrade aquatic habitat. These effects would dissipate shortly after construction activities cease and sediment settles and would not be anticipated to affect downstream aquatic species habitat or aquatic species populations. It is conservatively anticipated that the volume of water required for construction of the Project would not exceed 200 acre-feet over the course of an 18-month construction period. Water could be acquired by entering into temporary water use agreements with landowners with existing water sources or by drilling temporary water wells that are not hydrologically connected to the Platte River so that no new depletions to the Platte River occur during construction and no effects to aquatic resources would be anticipated. No new water depletions are expected for Project O&M and, therefore, no effects on aquatic resources would be anticipated from water withdrawals during that time.

Project construction and operations activities and vehicle traffic during construction and operations would disturb habitat for small game and nongame species and increase predation on these species from the introduction of new perching opportunities for avian predators until the disturbance was reclaimed as part of Project decommissioning and would not be expected to effect populations or communities of a species.

For one special-status species, the Preble's meadow jumping mouse, the FWS's Area of Influence overlaps a portion of the Project Area. There is moderate and moderately high suitable habitat present in that portion of the Project Area, but the species is not known to occur in the Project Area. The identified moderate and moderately high suitable habitat would be avoided to the extent practicable during Project construction. Based on the analysis of these issues, no significant impacts would be anticipated to terrestrial and aquatic wildlife and special-status species.

3.5 Avian and Bat Species

This section describes the existing context of winged wildlife, including raptors, migratory birds, bats, and associated species of concern and assesses potential impacts to these biological resources from the construction and operations of the Project. For discussion on impacts to aquatic and terrestrial wildlife and all special-status species (including avian and bat special-status species), see section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.”

3.5.1 Regulatory Background

In addition to the Federal laws and regulations mentioned in section 3.4.1, “Regulatory Background,” that offer some legal protections to wildlife species, such as the ESA, there are various other laws and regulations that provide further protections for select avian species. These Federal statutes consist of the following:

- The Migratory Bird Treaty Act of 1918, as amended, a multilateral international agreement intended to ensure the sustainability of populations of all protected migratory bird species and that prohibits the “take” (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the FWS.
- The BGEPA, a Federal statute that prohibits the “take” of an eagle without a permit, and further protects their feathers and parts, nests, nest trees, and winter/nighttime roosts. The BGEPA also addresses impacts that result from anthropogenic disturbance or alterations around an eagle nest site that may disrupt normal breeding, feeding, or sheltering habits, and cause injury, death, or nest abandonment to an eagle.

To provide direction and best practices for wildlife conservation amidst wind energy development, the FWS released a series of guidance documents recommending voluntary preconstruction, construction, and postconstruction environmental survey efforts and siting practices for wind facilities. Additionally, the FWS issued guidance identifying avian species in need of conservation relative to habitat types. These FWS management documents consist of:

- The FWS’s “Land-Based Wind Energy Guidelines” (WEG), which provides a standardized approach for addressing wildlife conservation concerns with attention toward “species of concern” during all stages of land-based wind energy development while promoting effective communication between wind energy developers and governmental agencies and tribes (FWS 2012). In the WEG, “species of concern” are defined as migratory birds; bats; bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), and other birds of prey; and listed, proposed, or candidate endangered and threatened species (FWS 2012). The FWS’s definition of “species of concern” differs from the definition of species of concern used throughout this document.
- The FWS’s “Eagle Conservation Plan Guidance, Module 1—Land-based Wind Energy, Version 2” is a supplemental document to the WEG and provides specific in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities (FWS 2013).
- The FWS’s “Birds of Conservation Concern” (BCC) identifies species within ecological Bird Conservation Regions (BCRs) that are priorities for conservation action with the intent to prevent or remove the need for ESA listing by taking proactive management and conservation actions (FWS 2008b). The Project Area intersects two BCRs, the Northern Rockies BCR (10) and the Southern Rockies/Colorado Plateau BCR (16).

As discussed in section 3.4.1, “Regulatory Background,” the State of Wyoming does not have any rules or regulations establishing species as threatened or endangered at the State level, but it has issued EOs and guidance documents that support prevention of ESA listing for at-risk avian and bat species and provides guidance on wildlife conservation for wind energy developers, similar to the FWS. These State of Wyoming EOs and management documents specific to avian and bat species consist of the following:

- The Wyoming Governor’s Office EO 2019-3 ultimately aims to prevent ESA listing of the greater sage-grouse (*Centrocercus urophasianus*) (State of Wyoming 2019). This EO defines Core Population Areas for greater sage-grouse, which are geographical extents with the highest densities of breeding greater sage-grouse in the State, as well as areas important for connectivity between populations. These core population areas divide Wyoming into individual working group areas to facilitate and implement local conservation plans that benefit greater sage-grouse and its habitats.
- The WYGFD’s “Wildlife Protection Recommendations for Wind Energy Development in Wyoming” (WYGFD 2010), which provides recommendations for collecting baseline data prior to Project siting to avoid potential conflicts with wildlife; construction and operations monitoring; and mitigating impacts to affected wildlife.

3.5.2 Data Sources

The information presented in this section comes from various sources, including technical biological survey reports developed for the Project, academic and peer-reviewed literature sources, publicly available GIS data, and governmental resources.

3.5.3 Analysis Area

Several factors influence the potential for avian and bat species to occur and persist in a given area, including the availability of suitable habitat, prey and forage, nesting or roosting substrate, and the level of disturbance present. Therefore, the analysis areas for potential effects on avian and bat wildlife resources vary by resource type and the Project-related effects being assessed.

The following analysis areas have been identified to evaluate the extent to which potential effects from the Project could occur on avian and bat species:

- Species occurrences accounts for all avian and bat species: The Project Area, defined as the approximately 26,000 acres encompassed within the Project boundary, is the analysis area. This analysis area and type is especially appropriate for species groups where publicly available spatial data are lacking, and the overall breadth of the species category necessitates a generally qualitative approach to analysis.
- Presence or absence of habitat and general landscape alterations for avian and bat species of concern: The Project Area is the analysis area in order to understand the overall habitat value to avian and bat species of concern.
- Native habitat converted to Project infrastructure and general landscape alterations: The siting corridors (representing areas of potential new ground disturbance such as access roads, turbine pads, and laydown yards) are the analysis area to capture all native habitat converted to Project-related features and provide context for overarching changes to the landscape such as habitat fragmentation. This analysis area is transferable to disturbance-specific analysis when Project infrastructure is categorized and differentiated during analysis.
- Potential for equipment collisions: The siting corridors are the analysis area to capture any potential for impacts from vehicle collision or compaction by construction equipment, as well as potential turbine and transmission line collisions.

- Current attractants for avian species in the form of concentrated prey bases and nesting substrate: The siting corridors are the analysis area to provide context for ground disturbance likely to affect these resources.
- General disturbance from Project-related activities: The siting corridors and a 328-foot (100-m) buffer are the analysis area to capture effects from generalized disturbances, such as noise from construction equipment, by applying a standardized buffer of 328 feet around ground disturbance areas.
- Disturbances to nesting non-eagle raptors: The Project Area and a 1-mile buffer are the analysis area in keeping with survey methodology for a technical report prepared for the Project and survey recommendations for non-eagle raptor nests set forth by the FWS (Western EcoSystems Technology [WEST] 2019a, FWS 2012).
- Disturbances to nesting eagles: The Project Area and a 2-mile buffer are the analysis area to commensurate with updated survey recommendations for eagle nests set forth by the FWS (FWS 2020c).
- Current attractants for bat species in the form of potential cavern-like roosts: The Project Area and a 2-mile buffer are the analysis area to provide an understanding of the overall habitat value of the Project Area to bat species; this analysis area for bats was selected because 2 miles is the maximum expected foraging distance from a roost for many bat species.

3.5.4 Baseline Description

The Project Area contains suitable habitat for avian and bat species. The avian and bat species known or expected to occur in the Project Area based on habitat type and resource availability are discussed in detail below.

3.5.4.1 Avian Species

The Project Area lies within the Central Flyway, a migratory corridor for bird species during their spring and fall migrations established to facilitate management between the FWS, States, and Canadian partners (FWS 2020d). The Central Flyway extends from northern Canada south through Mexico and encompasses all or parts of Montana, Wyoming, Colorado, New Mexico, Texas, Oklahoma, Kansas, Nebraska, South Dakota, and North Dakota. This migratory corridor supports a wide variety of avian species and facilitates seasonal movement for those that migrate. Resident and migratory birds could use the Project Area for breeding, nesting, foraging, hunting, roosting, and shelter. The shrublands, rangelands, forested areas, wetlands, and rocky outcrops in the Project Area provide habitat, nesting and foraging areas, and migratory stopover areas for a variety of raptor and migratory bird species. For a detailed description on habitat types and vegetation classes in the Project Area, see section 3.14, “Vegetation.”

From January 2019 through December 2019, 242 avian use surveys were conducted for the Project and 42 bird species were recorded (WEST 2019b). From January 2020 through December 2020, 295 avian use surveys were conducted for the Project and 43 bird species were recorded (WEST 2021). Biologists used the fixed-point count methodology described in the WEG (FWS 2012) and “Eagle Conservation Plan Guidance, Module 1—Land-based Wind Energy, Version 2” (FWS 2013). The methodology and results of these surveys are detailed in “Avian Use Study, Rail Tie Wind Project, Albany County, Wyoming: Final Report, January–December 2019” (WEST 2019b) and “Avian Use Study, Rail Tie Wind Project, Albany County, Wyoming: Final Report, January–December 2020” (WEST 2021).

Small Birds

Twenty-four species of small birds were recorded during avian use surveys conducted for the Project in 2019; in 2020, 26 species of small birds were recorded during avian use surveys conducted for the

Project. In both 2019 and 2020, nearly all small bird species recorded during avian use surveys were passerines (WEST 2019b, 2021) and of those, sparrows and other grassland species were most frequently recorded.

Upland Game Birds

Upland game birds expected in the Project Area include mourning dove (*Zenaida macroura*) and wild turkey (*Meleagris gallopavo*). No upland game birds were observed during avian use surveys conducted for the Project in 2019 (WEST 2019b). Mourning dove was observed during avian use surveys conducted for the Project in 2020 (WEST 2021). See section 3.5.4.3, “Species of Concern,” for a discussion on greater sage-grouse.

Waterfowl and Waterbirds

In general, waterfowl and waterbirds do not have suitable nesting habitat in the Project Area because of the absence of large lentic water features such as reservoirs and lakes; however, these species could pass through during migration and possibly use the wetland habitats and perennial streams within the Project Area as migratory stopover locations (section 3.15, “Wetland and Water Resources”). During avian use surveys conducted for the Project in 2019, two species of waterfowl and waterbirds that were identifiable to species were observed in the analysis area (American white pelican [*Pelecanus erythrorhynchos*] and Canada goose [*Branta canadensis*]). Three other observations were generalized as ducks, geese, and gulls (WEST 2019b). In 2020, Canada goose and ring-billed gull (*Larus delawarensis*) were observed in the analysis area in addition to a generalized species group for ducks.

Vultures

During avian use surveys conducted for the Project in 2019 and 2020, only one species of vulture was observed: turkey vulture (*Cathartes aura*) (WEST 2019b, 2021).

Large Corvids

During avian use surveys conducted for the Project, all four species of large corvid expected to occur in the Project Area were observed: American crow (*Corvus brachyrhynchos*), Clark’s nutcracker (*Nucifraga columbiana*), common raven, and black-billed magpie (*Pica hudsonia*) (WEST 2019b, 2021).

Raptors

Raptors and eagles are protected under the Migratory Bird Treaty Act and bald and golden eagles are also protected under the BGEPA (section 3.4.1, “Regulatory Background”). Twenty-two diurnal raptor species are known to occur in Wyoming (Orabona et al. 2016). Several of these species (e.g., Mississippi kite [*Ictinia mississippiensis*]) occur only rarely in Wyoming and are not expected to occur in the Project Area based on general habitat requirements and occurrence data. Based on known range and distribution and results of technical field surveys developed for the Project, 16 raptor species are likely to occur within the Project Area. Some raptor species occur seasonally in the Project Area and others occur year-round.

The Project Area’s habitat profile indicates that diurnal raptor species typical of pastoral landscapes, such as golden eagle, Swainson’s hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), and ferruginous hawk (*Buteo regalis*), could be present during the nesting season. Wintering species found in this habitat profile in southeastern Wyoming would include some species found during the nesting season and others, including rough-legged hawk (*Buteo lagopus*) and merlin (*Falco columbarius*).

During avian use surveys conducted for the Project in 2019, 11 diurnal raptor species were observed and identifiable to species, and unidentified individuals in four species groups were observed: unidentified buteos, unidentified falcons, unidentified eagles, and unidentified raptors (WEST 2019b). Bald eagles were rarely observed whereas golden eagles were more frequently observed within the Project Area; in total, 55 eagle observations were recorded during avian use surveys for the Project in 2019. The highest eagle usage was recorded in the fall and winter. Eagles were observed at 15 out of the 25 point-count locations during the entire survey period with much of the eagle use occurring in the southwestern portion of the Project Area (WEST 2019b). During avian use surveys conducted for the Project in 2020, 10 diurnal raptor species were observed and identifiable to species, and unidentified individuals in four species groups were observed: unidentified buteos, unidentified falcons, unidentified eagles, and unidentified raptors (WEST 2021). Bald eagles were rarely observed during avian use surveys for the Project in 2020, whereas golden eagles were more frequently observed. In total, 32 eagle observations were recorded during avian use surveys for the Project in 2020. In 2020, the highest eagle usage was recorded in the fall. Eagles were observed at 18 out of the 25 point-count locations during the entire survey period with much of the eagle use occurring in the southern and western portion of the Project Area (WEST 2021). A full account of raptor species that were identified during field-based surveys or that are expected to occur in the Project Area based on availability of suitable habitat is provided in table 3-12.

Table 3-12. Raptor Species Expected to Occur in the Project Area or Recorded During Surveys

Common Name	Scientific Name	Recorded During Surveys?
American kestrel	<i>Falco sparverius</i>	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	Yes
Broad-winged hawk	<i>Buteo platypterus</i>	No
Cooper's hawk	<i>Accipiter cooperii</i>	No
Ferruginous hawk	<i>Buteo regalis</i>	Yes
Golden eagle	<i>Aquila chrysaetos</i>	Yes
Merlin	<i>Falco columbarius</i>	Yes
Northern goshawk	<i>Accipiter gentilis</i>	Yes
Northern harrier	<i>Circus hudsonius</i>	Yes
Osprey	<i>Pandion haliaetus</i>	No
Peregrine falcon	<i>Falco peregrinus</i>	No
Prairie falcon	<i>Falco mexicanus</i>	Yes
Red-tailed hawk	<i>Buteo jamaicensis</i>	Yes
Rough-legged hawk	<i>Buteo lagopus</i>	Yes
Sharp-shinned hawk	<i>Accipiter striatus</i>	Yes
Swainson's hawk	<i>Buteo swainsoni</i>	Yes

Sources: Orabona et al. (2016); WEST (2019a, 2021); Tetra Tech (2020f).

All raptors observed are likely to use the entire Project Area to forage. Scientific literature, field surveys, and incidental field observations indicate that the analysis area supports populations of common wildlife species that could provide foraging opportunities for eagles and other raptor species such as jackrabbits (*Lepus* spp.), cottontails (*Sylvilagus* spp.), ground squirrels, and numerous species of mice and voles (section 3.4.4.1, “Nongame Species,” and section 3.4.4.2, “Small Game Species”). In addition to these prey resources, there are also concentrated prey bases within the Project Area that are available to, and likely to attract, eagles and other raptor species. Big game crucial winter range is potentially a concentrated prey base for eagles because of higher relative numbers of individuals congregating in that portion of the species range during the winter and concentrated area of winter-killed animals as a source of carrion. The Project Area contains approximately 1,650.5 acres of mule deer crucial winter range (section 3.4.5.1, “Impact Indicators;” see figure 3-4). Waterbodies and wetlands can also function as prey bases for raptor species because they provide localized sites where waterfowl, shorebirds, and other avian species could concentrate, and provide fish populations. In total, the Project Area contains approximately 424.1 acres of wetlands and approximately 7.1 acres of mapped waterbodies (figure 3-5). White-tailed prairie dog colonies can support widely variable numbers of individuals based on habitat, available forage, spread of disease, and human control efforts, among other factors, and are considered a concentrated prey base with possible value to eagles and other raptor species. While previous surveys completed for the Hermosa West Wind Farm Project (WEST 2011) documented the presence of white-tailed prairie dog colonies within the Project Area, these previously recorded prairie dog colonies were not observed within the siting corridors during the September 2019 field reconnaissance and are assumed no longer extant (Tetra Tech 2020d).

Raptor nest surveys were conducted within a 1-mile buffer around the Project Area for non-eagle raptor species and a 10-mile buffer around the Project Area for eagle species in 2019. These raptor nest surveys consisted of two rounds of aerial nest surveys using a helicopter (WEST 2019a). The analysis area for eagle nests is a 2-mile buffer commensurate with updated survey recommendations for eagle nests set forth by the FWS (FWS 2020c). Non-eagle species observed with active nests within the 1-mile buffer in 2019 were red-tailed hawk (three nests) and great horned owl (*Bubo virginianus*) (one nest). No active nests for non-eagle species were found within the Project Area. During nest surveys in 2019, one active golden eagle nest was observed within the Project Area and analysis area more generally (WEST 2019a) (figure 3-6). In 2020, raptor nest surveys were conducted within a 1-mile buffer around the Project Area for non-eagle raptor species and a 6-mile buffer around the Project Area for eagle species. The survey buffer was reduced from 10 miles in 2019 to 6 miles in 2020 based on the mean inter-nest distance for all active nests identified during the 2019 surveys and discussions with FWS (WEST 2020a). Both the 2019 and 2020 raptor nest surveys consisted of two rounds of aerial nest surveys using a helicopter. Non-eagle species observed with active nests within the 1-mile buffer in 2020 were red-tailed hawk (three nests) and great horned owl (two nests). One active great horned owl nest was found within the Project Area while the other active great horned owl nest was observed outside the Project Area; all three red-tailed hawk nests were located outside the Project Area. During nest surveys in 2020, one active golden eagle nest was observed within the Project Area and one active bald eagle nest was observed outside of the Project Area, but within the analysis area (WEST 2020a) (see figure 3-6).

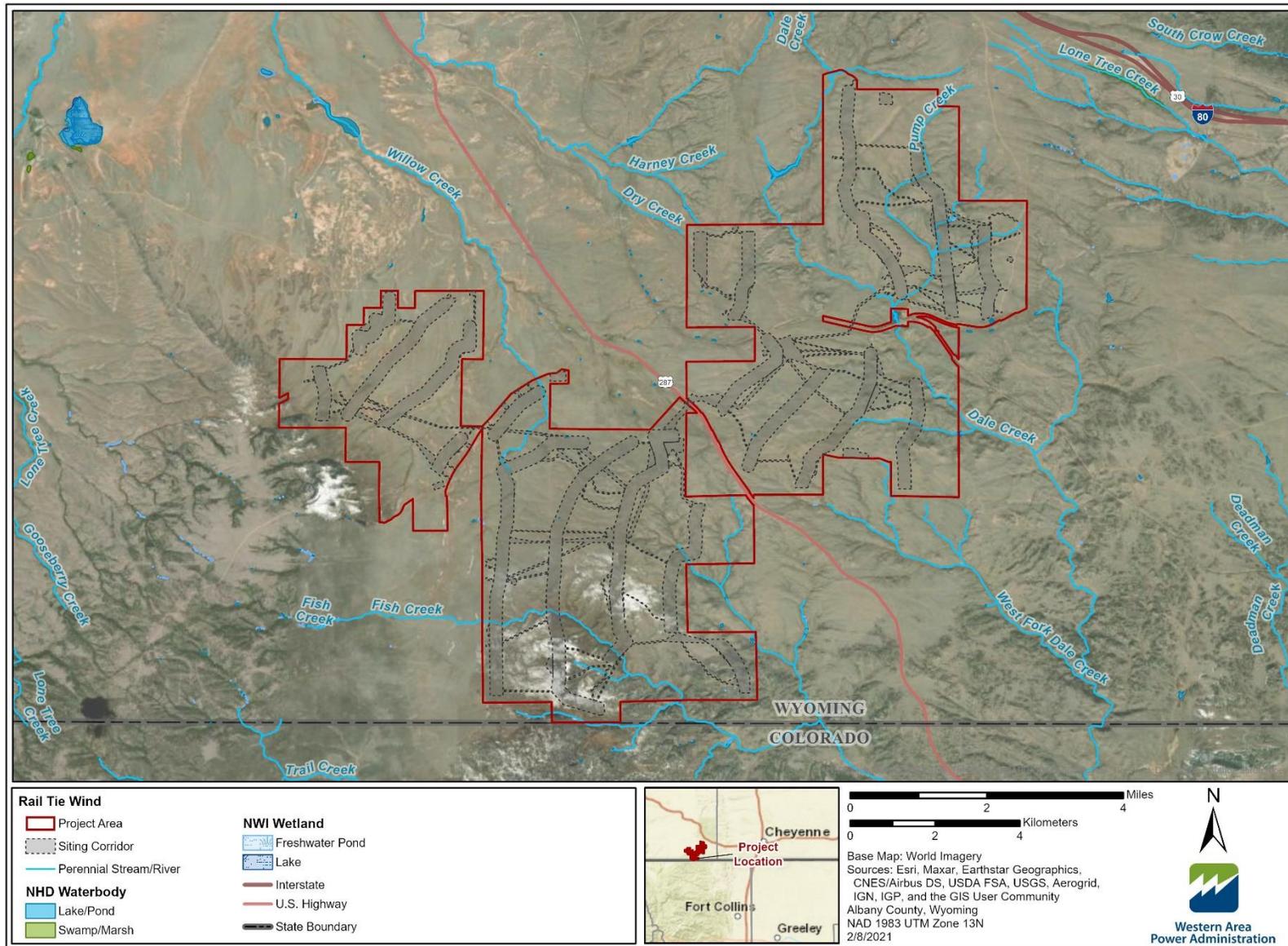


Figure 3-5. Potential prey bases for raptors within the Project Area.

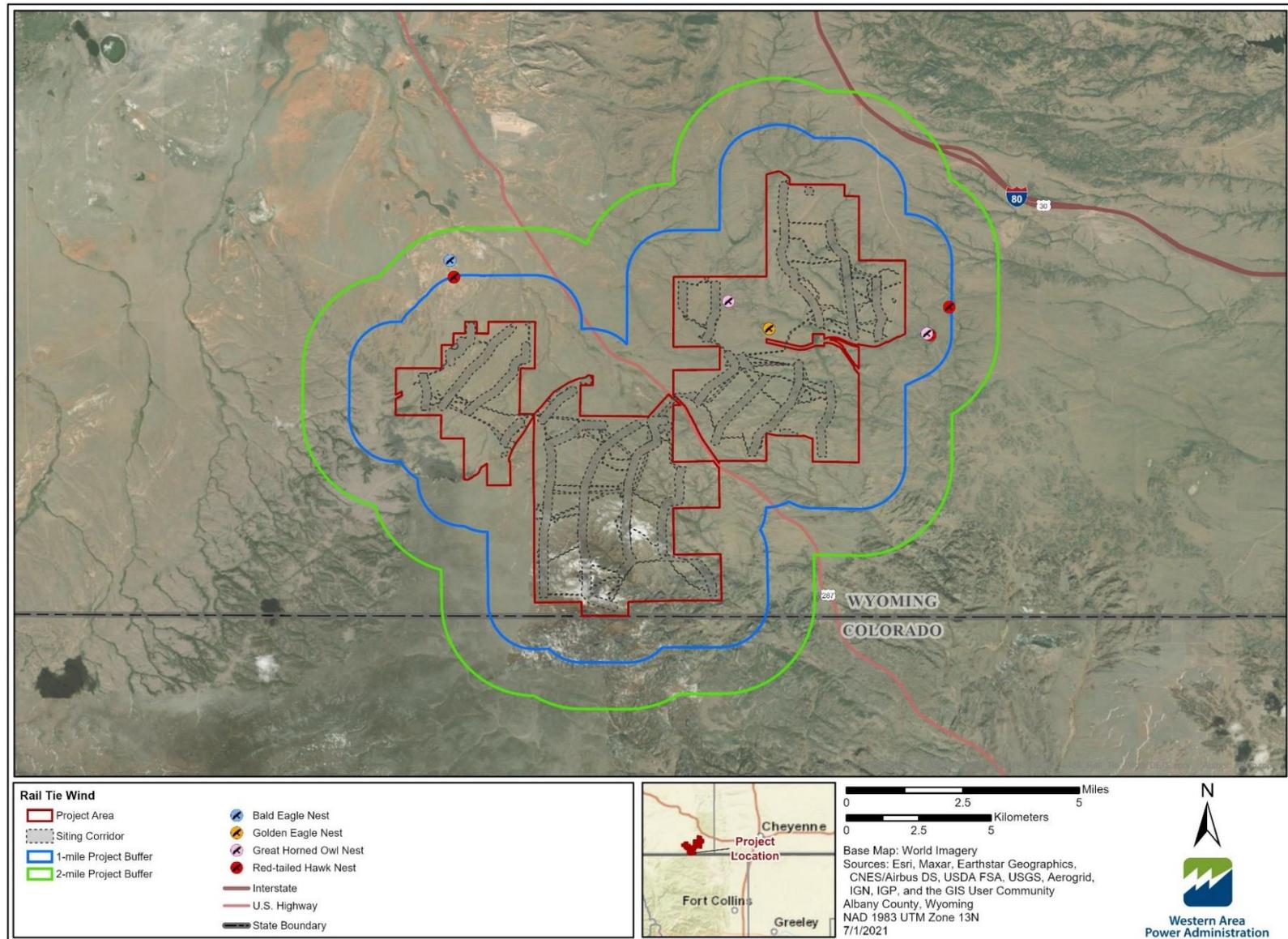


Figure 3-6. Observed raptor nests by species within a 2-mile buffer of the Project Area.

3.5.4.2 Bat Species

Bats use roosts and hibernacula for shelter, raising young, and hibernation (for those species that hibernate). Environments used for roosting and hibernacula could vary widely and include caves, rock crevices, cliffs, tree cavities, loose bark, abandoned mines, buildings, bridges, culverts, and bat houses. Potential bat roosts and hibernacula in the Project Area are likely restricted to human settlements, rock outcrops, and wooded areas, if present. Species that have highly specific maternity or roost site requirements, such as cavern-like structures, and those that require caves or crevices are less likely to occur in the Project Area than species with affinities for human structures or trees and that are migratory and less habitat-specific. Bats could travel longer distances from their roosts to their foraging areas and thus require calorically dense diets for survival. Wooded riparian corridors, rocky outcrops, and slow-moving streams provide the best habitat for bat species in the Project Area because they provide food sources, drinking water, and potential roost sites.

Eighteen bat species are known to occur in Wyoming (Orabona et al. 2016), and 12 of those species have potential to occur in the Project Area based on known distributions and available habitat (table 3-13). Bat acoustic surveys for the Project recorded bat calls from 10 of these 12 species through automated identification software (WEST 2019c, 2020b); typically, recorded bat calls are not conclusive evidence of presence or absence in the Project Area as automated call identification is imperfect, and each identification has an associated error rate. However, a qualified bat biologist verified calls through manual verification of calls, reclassifying them, and confirming that seven of those ten species with recorded bat calls (big brown bat [*Eptesicus fuscus*], eastern red bat [*Lasiurus borealis*], hoary bat [*Lasiurus cinereus*], silver-haired bat [*Lasionycteris noctivagans*], western long-eared myotis [*Myotis evotis*], little brown myotis [*Myotis lucifugus*], and fringed myotis [*Myotis thysanodes*]) were present in the Project Area during bat acoustic surveys for the Project (WEST 2019c, 2020b).

Table 3-13. Bat Species Expected to Occur in the Project Area or Recorded in Surveys

Common Name	Scientific Name	Confirmed by Acoustic Analysis
Big brown bat	<i>Eptesicus fuscus</i>	Yes
Eastern red bat	<i>Lasiurus borealis</i>	Yes
Fringed myotis	<i>Myotis thysanodes</i>	Yes
Hoary bat	<i>Lasiurus cinereus</i>	Yes
Little brown myotis	<i>Myotis lucifugus</i>	Yes
Long-legged myotis	<i>Myotis volans</i>	No
Pallid bat	<i>Antrozous pallidus</i>	No
Silver-haired bat	<i>Lasionycteris noctivagans</i>	Yes
Spotted bat	<i>Euderma maculatum</i>	No
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	No
Western long-eared myotis	<i>Myotis evotis</i>	Yes
Western small-footed myotis	<i>Myotis ciliolabrum</i>	No

Sources: Orabona et al. (2016); WEST (2019c, 2020b).

Some bat species prefer cave formations for winter hibernacula, summer maternity roosts, day roosts, and night roosts. Natural caves in Wyoming are primarily composed of karst (readily dissolved soluble rocks) features and are considered a nonrenewable resource (Hester and Grenier 2005). The Project Area has the potential to contain karst features; however, no caves or karst features were observed in the Project Area during field-based surveys (Tetra Tech 2020d). Abandoned underground mines share characteristics with caves that make them important roosting sites for bats; approximately one in three mines surveyed in Wyoming by the WYGFDD contained bats (Hester and Grenier 2005). Twenty-six possible mines were

identified in the analysis area for potential cavern-like bat roosts. At least one abandoned surface mine was confirmed as present within the Project Area, though not within the siting corridors, and is unsuitable roosting substrate for bats as it is not subsurface (Abandoned Mine Land Division 2020). Bat species with potential to occur in the Project Area that could use mines or caves for roosting include western small-footed myotis (*Myotis ciliolabrum*), western long-eared myotis, little brown myotis, fringed myotis, long-legged myotis (*Myotis volans*), big brown bat, Townsend’s big-eared bat (*Corynorhinus townsendii*), and pallid bat (*Antrozous pallidus*) (Hester and Grenier 2005).

3.5.4.3 Species of Concern

Special-status species include those that are listed under the ESA and are discussed in section 3.4.4.5, “Special-Status Species.” The WYESFO identifies SOC and SGCN in the Wyoming SWAP. For avian species, BCC and eagles are also considered species of concern. The Project Area intersects the Northern Rockies BCR (BCR 10) and the Southern Rockies/Colorado Plateau BCR (BCR 16).

There are 56 Wyoming avian and bat SGCN with the potential to occur in the Project Area. There are also 18 avian BCC, and 11 WYESFO SOC (table 3-14) with the potential to occur in the Project Area. Only four of the 56 SGCN species expected to occur in the Project Area (northern goshawk [*Accipiter gentilis*], burrowing owl [*Athene cunicularia*], common loon [*Gavia immer*], and mountain plover [*Charadrius montanus*]) are categorized as Tier I conservation priorities. Although northern goshawk was recorded during avian use surveys (WEST 2019b), the Project Area does not provide suitable nesting habitat for the species and it is expected to occur irregularly during migratory and winter seasons. Surveys for burrowing owl were conducted at 73 survey locations throughout the Project Area in May, June, and July 2020, and no burrowing owls or signs of burrowing owl (e.g., pellets, whitewash) were observed (Tetra Tech 2020f). These survey results combined with the absence of observations of burrowing owl during avian use surveys conducted for the Project (WEST 2019b) suggest that burrowing owl are typically not present within the Project Area.

Table 3-14. Wyoming Avian and Bat Species of Greatest Conservation Need, Birds of Conservation Concern, and Species of Concern with Potential to Occur in the Project Area

Common Name	Scientific Name	Special Status	Recorded on Survey?
Avian			
American kestrel	<i>Falco sparverius</i>	SGCN Tier III	Yes
American pipit	<i>Anthus rubescens</i>	SGCN Tier III	Yes
American white pelican	<i>Pelecanus erythrorhynchos</i>	SGCN Tier II	Yes
Bald eagle	<i>Haliaeetus leucocephalus</i>	SGCN Tier II, BCC, SOC	Yes
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	SGCN Tier II	No
Black-crowned night-heron	<i>Nycticorax</i>	SGCN Tier II	Yes
Black rosy-finch	<i>Leucosticte atrata</i>	SGCN Tier II, BCC	Yes
Black tern	<i>Chlidonias niger</i>	SGCN Tier II	No
Black-throated gray warbler	<i>Setophaga nigrescens</i>	SGCN Tier II	No
Bobolink	<i>Dolichonyx oryzivorus</i>	SGCN Tier II	No
Brown-capped rosy-finch	<i>Leucosticte australis</i>	SGCN Tier II, BCC	No
Brewer’s sparrow	<i>Spizella breweri</i>	SGCN Tier II, BCC	Yes
Burrowing owl	<i>Athene cunicularia</i>	SGCN Tier I, BCC, SOC	No
Calliope hummingbird	<i>Selasphorus calliope</i>	SGCN Tier II, BCC	No
Canyon wren	<i>Catherpes mexicanus</i>	SGCN Tier II	No
Chestnut-collared longspur	<i>Calcarius ornatus</i>	SGCN Tier II	No

Common Name	Scientific Name	Special Status	Recorded on Survey?
Clark's grebe	<i>Aechmophorus clarkii</i>	SGCN Tier II	No
Clark's nutcracker	<i>Nucifraga columbiana</i>	SGCN Tier II	Yes
Common loon	<i>Gavia immer</i>	SGCN Tier I	No
Common nighthawk	<i>Chordeiles minor</i>	SGCN Tier III	No
Common yellowthroat	<i>Geothlypis trichas</i>	SGCN Tier III	Yes
Ferruginous hawk	<i>Buteo regalis</i>	SGCN Tier II, BCC, SOC	Yes
Forster's tern	<i>Sterna forsteri</i>	SGCN Tier II	No
Golden eagle	<i>Aquila chrysaetos</i>	SGCN Tier II, BCC, SOC	Yes
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SGCN Tier II, BCC	No
Great blue heron	<i>Ardea herodias</i>	SGCN Tier II	Yes
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SGCN Tier II, SOC	No
Lewis's woodpecker	<i>Melanerpes lewis</i>	SGCN Tier II, BCC	Yes
Loggerhead shrike	<i>Lanius ludovicianus</i>	SGCN Tier II, BCC	Yes
MacGillivray's warbler	<i>Geothlypis tolmiei</i>	SGCN Tier II	Yes
McCown's longspur	<i>Rhynchophanes mccownii</i>	SGCN Tier II, BCC	Yes
Merlin	<i>Falco columbarius</i>	SGCN Tier II	Yes
Mountain plover	<i>Charadrius montanus</i>	SGCN Tier I, BCC, SOC	No
Northern goshawk	<i>Accipiter gentilis</i>	SGCN Tier I, SOC	Yes
Peregrine falcon	<i>Falco peregrinus</i>	SOC	No
Prairie falcon	<i>Falco mexicanus</i>	BCC, SOC	Yes
Pygmy nuthatch	<i>Sitta pygmaea</i>	SGCN Tier II	No
Red crossbill	<i>Loxia curvirostra</i>	SGCN Tier II	Yes
Red-eyed vireo	<i>Vireo olivaceus</i>	SGCN Tier II	No
Sage thrasher	<i>Oreoscoptes montanus</i>	SGCN Tier II, BCC	Yes
Short-eared owl	<i>Asio flammeus</i>	SOC	No
Snowy egret	<i>Egretta thula</i>	SGCN Tier II	No
Swainson's hawk	<i>Buteo swainsoni</i>	SGCN Tier II, BCC, SOC	Yes
Virginia rail	<i>Rallus limicola</i>	SGCN Tier III	No
White-faced ibis	<i>Plegadis chihi</i>	SGCN Tier II	Yes
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	SGCN Tier II, BCC	No
Willow flycatcher	<i>Empidonax traillii</i>	SGCN Tier III, BCC	No
Bats			
Eastern red bat	<i>Lasiurus borealis</i>	SGCN Tier III	Yes
Fringed myotis	<i>Myotis thysanodes</i>	SGCN Tier II	Yes
Little brown myotis	<i>Myotis lucifugus</i>	SGCN Tier II	Yes
Long-legged myotis	<i>Myotis volans</i>	SGCN Tier III	No
Pallid bat	<i>Antrozous pallidus</i>	SGCN Tier II	No
Spotted bat	<i>Euderma maculatum</i>	SGCN Tier III	No
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SGCN Tier II	No
Western long-eared myotis	<i>Myotis evotis</i>	SGCN Tier III	Yes
Western small-footed myotis	<i>Myotis ciliolabrum</i>	SGCN Tier II	No

Sources: WYGFD (2017b); FWS (2008b, 2020b); WEST (2019b, 2019c, 2020b); Tetra Tech (2020f).

Note: SGCN Tier I = highest priority, SGCN Tier II = moderate priority, SGCN Tier III = lowest priority. SOC = Species of Concern as defined by the WYESFO.

Sixteen SGCN avian species were observed within the Project Area during avian use surveys (WEST 2019b, 2021), and four SGCN bat species calls were confirmed during bat acoustic survey analysis (WEST 2019c, 2020b) (see table 3-14).

Greater sage-grouse require large contiguous areas of sagebrush habitat that include a variety of semiarid shrub-grassland (shrub steppe) habitats, particularly big sagebrush (*Artemisia tridentata*) (WYGFD 2017a). The southern portion of the Project Area contains areas of Inter-mountain Basins Montane Sagebrush Steppe; however, this area is likely not extensive enough to support greater sage-grouse. No greater sage-grouse or leks (breeding areas) were observed during surveys conducted for the Hermosa West Wind Farm Project (WEST 2011) or during avian point count surveys and other field surveys conducted in 2019 for the Project (WEST 2019b). The nearest designated Core Population Area (see section 3.5.1, “Regulatory Background”) is approximately 22 miles north of the Project Area.

3.5.5 Impacts to Resource

This section describes the potential impacts to avian and bat wildlife species from the construction, O&M, and decommissioning of the Project.

3.5.5.1 Impact Indicators

The following impact indicators were assessed to determine expected impacts to avian and bat species from construction, O&M, or decommissioning of the Project:

- Potential occurrence of species based on publicly available data, field-based technical reports, and observed habitat.
- Acres of construction-related and operations-related ground disturbance, or lost terrestrial habitat, from clearing of vegetation during construction and operations and the presence of Project-related infrastructure during operations and the potential for mortality from construction activities.
- Acres of construction-related and operations-related ground disturbance within potential prey bases, or raptor and eagle attractants, including mule deer crucial winter range and waterbodies, wetlands, and perennial streams.
- Count and location of raptor and eagle nests within respective analysis areas.
- Wind turbine count and total wind-swept area of ConnectGen’s proposed Project.
- Miles of new access roads that could lead to habitat fragmentation, increased risk of vehicular collisions, and potential for mortality during construction activities.
- Miles of new transmission line that could lead to increased predation risk and potential for collision or electrocution.
- Count of new meteorological equipment that could pose a collision risk.
- Results from an assessed risk exposure index of avian use surveys conducted for the Project.
- Analysis of potential bat hibernacula in the analysis area and acres of construction-related and operations-related ground disturbance within potential roosting habitat.
- Number and type of concentrated prey bases in the Project Area and acres of disturbance of concentrated prey bases for construction and operations activities.
- Results of postconstruction bat fatality monitoring (i.e., operations monitoring) for similar projects and results of literature review on impacts to bats at wind farms.

Effects on avian or bat species and associated species of concern are considered at the individual, community, and population levels.

3.5.5.2 Methods of Analysis

- Natural histories of avian and bat species and observations from field-based technical surveys were evaluated to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat or would deter such species from using the area, fragment habitat, or decrease survival of individual animals.
- Spatial data were evaluated to determine if the Project would result in habitat loss of important landscape features such as prey bases or hibernacula for each respective species group from Project construction and operations.
- Nest locations mapped during field-based technical surveys and potential nesting substrate were qualitatively evaluated to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available nesting opportunities or disturbance to nesting species.
- Project disturbance types were differentiated and analyzed to determine acres or miles of disturbance relative to disturbance types as well as the potential for mortality from direct strikes, increased predation, or electrocution.
- Habitat for avian and bat species of concern were mapped within the Project Area to determine if the Project would result in population declines for any such species.
- Relevant literature relating to other wind facilities within an approximately 150-mile area to the Project was gathered and reviewed to determine postconstruction avian and bat mortality studies at those wind facilities. This analysis allows for a general comparison of impacts to avian and bat species at similar, regional facilities.
- An assessed risk exposure index of avian use surveys conducted for the Project.

3.5.5.3 Proposed Action

Issue Statement #1: Would construction and operations affect avian and bat habitat and, if so, are all habitat types for affected species reclaimable through reclamation efforts?

Construction, O&M, and decommissioning of the Project would include surface-disturbing activities that would remove vegetation communities (section 3.14, “Vegetation”) required by avian species to meet their life history needs (i.e., nesting, foraging, and brood-rearing). Disturbed vegetation communities could benefit species that use denuded sites or anthropogenic habitats (e.g., the O&M building), such as horned lark (*Eremophila alpestris*) and European starling (*Sturnus vulgaris*). Surface-disturbing activities could also affect habitat used by bats for roosting and foraging.

The applicant has committed to limit temporary ground-disturbing activities to the minimum amount necessary to safely construct Project facilities (GEO-1). Environmentally sensitive areas (e.g., wetlands, habitats) in and adjacent to the Project Area would be delineated to avoid or minimize impacts to these areas during final siting and design (GEN-2). Initial vegetation clearing would be performed during the nonbreeding season for birds (September 1–April 15) if feasible. If vegetation clearing cannot occur during the nonbreeding season, surveys would be performed in breeding bird habitat that would require clearing to identify avian nesting activity and nest sites would be avoided until determined to be inactive. Immediately after construction, disturbed ground surfaces would be reclaimed and restabilized by native vegetation (VEG-2). Reclamation of disturbed areas would promote the re-establishment of native vegetation for use by avian and bat species by identifying locally approved, weed-free seed mixtures that

prioritize plant species native to the ecosystems affected by site construction (VEG-3). Prior to the start of construction, the Project would also develop and implement a Weed Management Plan that identifies appropriate controls to avoid, minimize, or treat the spread of noxious weeds (VEG-4).

Construction disturbance and operations infrastructure would affect up to 1,471.3 acres of habitat (5.6 percent of the Project Area) for a variety of avian and bat species because bat and avian species forage over several land cover types (table 3-15). Of that, 1,287.2 acres would be reclaimed after construction activities cease. The remaining 184.1 acres would be reclaimed during decommissioning. See section 3.14, “Vegetation,” for a discussion on reclamation potential for vegetative resources that are disturbed during construction and operations activities. Reduction of habitat from construction and O&M of the Project is not expected to result in population or community-level declines for avian or bat species given the relatively small amount of disturbance compared to available habitat.

Table 3-15. Expected Project Disturbance by Disturbance Type

Disturbance Type	Amount of Disturbance
Acres of construction ground disturbance to be reclaimed upon completion of construction	1,287.2
Acres of operations infrastructure ground disturbance	184.1
Miles of new access roads	58.0
Miles of new transmission line	4.4
Count of new meteorological equipment	3.0

Source: ConnectGen (2020).

Issue Statement #2: Would noise and dust generated from construction and operations activity, equipment, and personnel affect avian behavior?

The analysis area for this issue is the siting corridors plus a 328.1-foot buffer around the siting corridors. Noise and other human-activity disturbances associated with construction and operations of the Project, such as the presence of construction workers or facility personnel, could change habitat use patterns for some avian species and could temporarily disrupt life-cycle activities because many species would likely avoid work areas during construction activities. The effects of construction activity and noise on avian species and bats would be similar to those described for aquatic and terrestrial wildlife species (section 3.4.5.3, “Proposed Action”). The EPMS described in table 2-6 and section 3.4.5.3, “Proposed Action,” would also mitigate the effects of human activity and noise on avian and bat species, as discussed below.

To avoid and minimize disturbance to avian species during construction, initial vegetation clearing would be performed to the extent feasible during the non-breeding season for birds (September 1 through April 15) (WL-1). The focus of this activity is to avoid direct physical disturbance to nesting adults, nests and their contents. If vegetation clearing cannot occur during the non-breeding season, surveys would be performed in breeding bird habitat to identify avian nesting activity within Project disturbance areas, and areas within active nest buffers would be avoided until determined to be inactive. The Project also established a 1-mile spatial buffer around known, occupied eagle nests identified during the 2019 and 2020 raptor nest surveys. The area within the 1-mile buffers was excluded from the Project Siting Corridor, therefore WTGs would be setback a minimum 1-mile from the identified eagle nests (WL-9), thus reducing the extent of construction activities within that buffer. If future nest surveys identify additional occupied eagle nests, ConnectGen would coordinate with the FWS to identify appropriate nest-specific avoidance or minimization measures.

To reduce avian disturbance due to noise from construction activities, construction vehicles and equipment would be maintained in proper operating condition and equipped with manufacturers’ standard noise control devices or better (e.g., mufflers and engine enclosures) (NOISE-1). Construction and hauling equipment would be maintained adequately and equipped with appropriate mufflers (NOISE-2). During

construction, O&M, and decommissioning, idling equipment would be turned off when not in use (AQ-5), and blasting or hydraulic hammering during construction would be limited to daylight hours (NOISE-3), thereby limiting the duration of noise. Dust, and any associated disturbance to avian species would be minimized by treating all unpaved roads and disturbed areas where construction activities are actively occurring, including temporary laydown areas, with water or other surfactants as frequently as necessary to control fugitive dust (AQ-2). All vehicles that are used to transport solid bulk material on public roadways and have the potential to cause visible dust emissions on public roadways either would be covered or the materials sufficiently wetted in a manner to minimize fugitive dust emissions (AQ-4).

During O&M, some individuals could relocate away from the source(s) of the disturbance to adjacent or nearby habitats, which could lead to increased competition for resources within these areas and thus create a community-level effect. In total, there are 12,997 acres of potential noise and human activity disturbance areas for avian species in the analysis area. Given the sporadic and localized nature of Project-related noise and other human-activity disturbances, the associated effects are likely to affect individuals of an avian species rather than communities or populations; they could lead to reproductive failure for one season or to increased stress on individuals, which could affect their overall ability for survival. These effects would be considerably reduced with the completion of construction activities but would not altogether cease as operations activities necessitate ongoing human presence in the analysis area. Human activities and noise would decrease once construction ceased but would continue into the operational stage of the Project, though sporadically and at less intensity than during the construction stage. Individuals would likely return to disturbed areas when activities ceased, or when the area was successfully reclaimed.

ConnectGen has committed to develop and implement a Bird and Bat Conservation Strategy (BBCS) to avoid and reduce potential impacts to non-listed bird and bat species that may result from the operations of the Project (WL-2). ConnectGen has also committed to develop and implement eagle conservation practices and seeks to avoid the unintentional take of eagles at wind energy facilities (WL-3). The noise and dust control measures described above would be components of the BBCS and eagle conservation measures. Both of these commitments are discussed further in Issue Statement #3 below.

Issue Statement #3: Would construction and operations activities and equipment increase mortality to avian species via direct strikes, increased predation risk, or electrocution?

Aboveground power lines could provide perching opportunities for some avian species, positively impacting those that use these structures for hunting perches, such as diurnal raptors and owls, and negatively impacting their avian prey species. The presence of construction-related trash and debris could be an attractant for some avian nest predators, such as American crow and common raven. Increased vehicle and equipment traffic on new and existing access road networks could increase the risk of vehicular collisions with avian species. Avian collisions with met towers would be minimized because self-supporting met towers without guy wires would be used for the Project. Potential bird collisions would be expected to be reduced compared to guyed towers (Erickson et al. 2005). Eagles and raptors would not be at risk of electrocution on transmission lines because spacing of conductors to grounds is too great to allow wing contact or arcing for even the largest birds. Electrocution risk on aboveground collector lines, where conductor-to-ground spacing is less, would be minimized or avoided entirely by following APLIC design recommendations (APLIC 2006). Anticipated bird losses from these potential causes of fatality would therefore be expected to be negligible in terms of individuals and there would be no expected population or community-level effects. Wind turbine collision fatalities during the operational stage of the Project are expected to be the primary adverse effect on avian species; this is discussed in more detail below.

A BBCS would be developed and implemented to avoid and reduce potential impacts to avian and bat species that could result from the Project. Construction-related trash and debris would be covered and properly disposed of to avoid attracting avian nest predators (WL-5). To reduce the risk of avian collisions,

the overhead power to ground wires associated with the 345-kV gen-tie line would be marked with bird flight diverters consistent with methods suggested in the APLIC’s “Reducing Avian Collisions with Power Lines: The State of the Art in 2012” (APLIC 2012) (WL-6), as appropriate. If overhead collection lines are required because of geology or topography constraints, they would be designed to incorporate appropriate spacing of energized parts to avoid or reduce the potential for electrocution risk to large birds, specifically raptors, in accordance with the APLIC’s “Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006” (APLIC 2006) (WL-7). With successful implementation of these EPMs and the BBCS, the risk of collision and electrocution with the transmission line would be minimized.

Approximately 4.4 miles of 345-kV aboveground electric transmission line would be built within the siting corridors (see table 3-15). Some individual birds could collide with the transmission line or be preyed upon by birds using the line as a hunting perch; however, these impacts are unlikely to reach population or community levels. These effects would persist through the operational life of the Project and end during decommissioning. Three self-supported, lattice-mast style met towers would be installed in the Project Area that also pose a potential collision risk (see table 3-15). See section 3.13, “Transportation and Access,” for a discussion on anticipated vehicle and road use for the Project.

A relative exposure index for turbine collision was calculated for diurnal raptor species observed in the Project Area based on flight height observations and relative abundance; this index used avian use data collected for the Project from January to December 2019 (WEST 2019b). A rotor swept zone of 82 to 689 feet encompassing the lowest and highest extent of the rotor blades inclusive of the three turbine models was used for this calculation. Swainson’s hawk had the highest relative exposure index at 0.21, followed by golden eagle at 0.16, red-tailed hawk at 0.13, and American kestrel at 0.11. Ferruginous hawk and prairie falcon had an exposure index at 0.07, rough-legged hawk at 0.05, bald eagle at 0.02, and northern harrier at 0.01. All observations of merlin and northern goshawk were below the lowest reach of turbine blades (below 82 feet) and, therefore, had exposure indices at zero.

Total wind-swept area—the area where collisions could occur—for the GE 3.0 MW turbine and the Vestas 5.6 MW turbine is less than the total wind-swept area for the Siemens Gamesa 6.0 MW turbine (table 3-16), indicating that the Siemens Gamesa 6.0 MW turbine would have an increased mortality risk compared to the other models. Erickson et al. (2014) conducted a metanalysis of postconstruction bird fatality data at numerous wind facilities across North America and found no linear correlation between turbine height and the fatality rates estimated for turbines with hub heights between 118.1 and 262.5 feet. Alternatively, other aggregations of postconstruction avian fatality data have found support for an increase in bird mortality with increasing turbine hub height when comparing turbines with hub heights between 118.1 and 262.5 feet (Loss et al. 2013). No publicly available metanalysis studies have been published for turbines with hub heights between 80 and 125 m however, to assess whether increased hub height has any impact on bird fatality rates.

Table 3-16. Size and Estimated Wind-Swept Area of Potential Turbines

Turbines	GE 3.0 MW	Vestas 5.6 MW	Siemens Gamesa 6.0 MW
Number of towers ¹	149	90	84
Hub height	292 feet (89 m)	410 feet (125 m)	377 feet (115 m)
Total turbine height	502 feet (153 m)	676 feet (206 m)	656 feet (200 m)
Blade (rotor) diameter	417 feet (127m)	531 feet (162 m)	558 feet (170 m)
Wind-swept area per tower	136,572 square feet	221,452 square feet	244,545 square feet
Total wind-swept area	20,349,228 square feet	19,930,680 square feet	20,541,780 square feet

Source: ConnectGen (2020).

¹ Between 84 and 149 turbines would be included in the Project. The total number of wind turbines would depend on the turbine model selected and final design. Calculations are estimations based on this range.

The closest wind-energy facility to the Project with public postconstruction fatality data is Foote Creek Rim I, located approximately 50 miles northwest of the Project (WEST 2019c). This Project is in a landscape dominated by mixed grass prairie and sagebrush shrubland. At Foote Creek Rim I, 92 percent of avian fatalities were passerine species; raptor casualties were very low despite high raptor use estimates for the site. Avian fatality rates ranged from 1.2 to 2.0 non-raptor birds/turbine/year and 0.0 to 0.1 raptors/turbine/year (Young et al. 2003). Although bird mortality at turbines is well documented at many wind energy facilities, effects on avian populations have not been reported because many factors typically contribute to avian population declines, and it is challenging for researchers to isolate a single causal factor. Avian fatalities from turbine strikes could affect individual birds but are not anticipated to be of a magnitude that would affect populations or communities of avian species.

Because golden and bald eagles have been documented in the Project Area, individuals of those species are considered at risk of fatality from collision with operating turbine blades, with preliminary information suggesting multiple eagle fatalities per year, and a large proportion expected to be golden eagles. Project-related incidental take is considered a significant impact by WAPA. The incidental take of eagles without an eagle incidental take permit (EITP) issued by the FWS would also be a violation of the BGEPA. The FWS has recommended that the applicant: (i) follow the FWS Region 6 guidance for minimizing wind energy impacts to eagles (FWS 2013, 2021c, 2021d); (ii) develop an eagle conservation plan; and (iii) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns for the Project and has committed to implement eagle-specific conservation measures specified in this EIS (see table 2-6) and those required in the eagle conservation plan and EITP. To reduce the risk of collision with turbine blades, ConnectGen established a 1-mile spatial buffer around known, occupied eagle nests identified during the 2019 and 2020 raptor nest surveys. The area within the 1-mile buffers was excluded from the Project Siting Corridors, therefore WTGs would be setback a minimum 1-mile from the identified eagle nests (WL-9). These setbacks may reduce the potential interaction between nesting eagles and the operating WTGs if these nests are active during Project operation. The measures included in the eagle conservation plan would be implemented prior to Project operation (e.g., avoidance, minimization, and mitigation measures would be implemented prior to the impacts occurring).

The issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. ConnectGen has committed to implement avoidance, minimization, and mitigation measures developed as part of the eagle conservation plan and EITP process in meeting that standard. The FWS's process for issuing a BGEPA EITP is a separate NEPA action, conducted by FWS, outside of this EIS. The FWS would perform an NEPA analysis to consider the measures implemented through the eagle conservation plan and offset mitigation to determine the impact significance for the EITP purposes. ConnectGen would develop and implement the environmental-related plans listed in table 2-7, including an eagle conservation plan and a BBCS. When developing an eagle conservation plan or BBCS, it is standard practice to include further discussion with FWS of mitigation and minimization measures and to consider potential adaptive management measures. Adaptive management strategies would be informed by postconstruction mortality surveys to calculate the fatality rate of birds and bats (WL-4), and notification would occur to FWS within 24 hours of federally listed species or eagle mortality documented on the Project site (WL-8). If and when an appropriate amount of mitigation offset is established between FWS and ConnectGen, the impact to eagles could be reduced. Although Project-related incidental take is considered a significant impact by WAPA, avoidance, minimization, and mitigation measures developed as part of the eagle conservation plan and EITP process would meet the FWS's eagle preservation standard upon issuance of an EITP.

Issue Statement #4: Are there important resources for raptors in the form of concentrated prey bases in the analysis area, and if so, is there potential for disturbance of prey bases due to construction and operations of the Project?

Raptor prey bases within the analysis area (siting corridors) include mule deer crucial winter range and waterbodies, wetlands, and perennial streams (table 3-17). Project construction and operations activities have the potential to disturb prey habitat and individual prey animals.

Table 3-17. Potential Project Disturbance by Prey Base Type

Prey Base	Amount of Prey Base in Siting Corridors	Percentage of Prey Base in Siting Corridor
National Wetlands Inventory wetlands	79.6 acres	18.8
National Hydrography Dataset ponds	2.6 acres	0.2
Perennial streams	2,109.6 linear feet	–
Mule deer winter range	292.2 acres	17.7

Sources: Tetra Tech (2020d).

To minimize the impact to prey habitat, ConnectGen would identify, avoid, and/or minimize adverse effects on wetlands and waterbodies to the extent practicable (WQ-1), by implementing the following measures as well as other water quality measures identified in table 2-6. The Project would delineate environmentally sensitive areas (e.g., wetlands, waters, habitats) located within or adjacent to the Project Area and seek to avoid or minimize impacts to these areas during final siting and design. Environmentally sensitive areas would be identified in construction planning documents. Construction and operations personnel would be informed of the appropriate practices that may be applicable to avoid or minimize impacts when working in the vicinity of these areas (GEN-2). Equipment operation in or directly adjacent to wetlands or waterbodies would be kept to the minimum necessary to safely perform the work (WQ-3). Wetland and aquatic resource boundaries would be clearly identified on all construction plans and would be posted with signs and flagging in the field (WQ-4). Erosion control barriers and other measures, such as silt fencing, fiber logs, and/or hay bales would be placed immediately upgradient of wetlands and waterbodies to minimize sediment transport and deposition (WQ-6). Minimization of impacts to prey habitat in wetlands and waterbodies would minimize impacts to raptors who rely on those prey bases.

Measures to minimize effects on big game are described in section 3.4.5.3, “Proposed Action.” Important wildlife habitats, such as surface water, wetlands, and riparian areas, would be avoided to the greatest extent practicable to minimize the loss of these critical landscape features (GEN-2, WL-10). Construction activities would be avoided between November 15 and April 30 in areas of mule deer crucial winter range (WL-10). By minimizing impacts to mule deer crucial winter range, impacts to raptor prey bases within that habitat would also be minimized.

Considering that the percentage of prey bases potentially affected by Project construction and operations is relatively low compared to total available prey bases, and avian species would still have opportunities to forage at unimpacted prey bases within the analysis area, impacts are not anticipated at the individual, community, or population levels.

Issue Statement #5: Would construction activities involve the removal of trees or vegetation with potential to serve as substrate for nesting avian species?

Construction activities would remove vegetation, including some trees, with the potential to serve as nesting substrate for avian species. Ground disturbance could affect ground-nesting species through the removal of potential nesting substrate (e.g., shrubs and rock outcrops) (see table 3-15).

Temporary ground disturbance activities would be limited to the minimum amount necessary to safely construct Project facilities (GEO-1). Initial vegetation clearing would be performed during the nonbreeding season for avian species (September 1–April 15), if feasible. If vegetation clearing cannot occur during the nonbreeding season, surveys would be performed in breeding bird habitat to identify avian nesting activity in the Project Area and nest sites would be avoided until determined to be inactive (WL-1). WTGs would be set back at least 1 mile from known, occupied eagle nests based on existing and future nest surveys, and the Project would continue to coordinate with the FWS to identify appropriate nest-specific avoidance or minimization measures (WL-9).

The siting corridors contain approximately 52.6 acres (0.81 percent) of forested areas, approximately 177.4 acres of foothill shrublands (2.75 percent), approximately 5,883.1 acres (91.4 percent) of sagebrush shrublands, and approximately 31.0 acres (0.48 percent) of granite rock outcrops with sparse vegetation that could contain suitable nest substrate for avian species (Tetra Tech 2020d). Considering that the percentage of impact within siting corridors for land cover types that may contain potential nesting substrate is relatively low compared to available potential nesting substrate in the area more generally, impacts are not anticipated at the community or population levels. Individuals, specifically those with nest fidelity, may still be impacted if existing nesting locations are disturbed.

Issue Statement #6: Would noise and human presence from construction and operations activities, equipment, and personnel affect nesting success of avian species, including raptors?

Noise and increased human presence from Project construction and operations activities, equipment, and personnel has the potential to disrupt nesting avian species, including raptors. Nest abandonment or direct mortality could result from surface-disturbing construction activities. Human activities and use of equipment could displace nesting birds, cause birds to abandon nests, or reduce fitness and survivorship because of increased alertness or changes in activity patterns (e.g., fleeing disturbed areas).

During the nesting season, avian species are most vulnerable to human-activity disturbances (e.g., noise and human presence), which could result in mortality. Effects on nesting species from Project construction and operations include nest abandonment or direct mortality from construction activities such as vegetation removal.

Initial vegetation clearing would be performed during the nonbreeding season for birds (September 1 through April 15), if feasible. If vegetation clearing cannot occur during the nonbreeding season, surveys would be performed in breeding bird habitat to identify avian nesting activity in areas where disturbance is anticipated. Nest sites would be avoided until determined to be inactive (WL-1).

There was only one active raptor nest observed within the Project Area during aerial nest surveys in 2019: an active golden eagle nest (WEST 2019a). In 2020, an active great horned owl nest was found within the Project Area, as well as an active golden eagle nest, the same active golden eagle nest observed in 2019 (WEST 2020a). The area within 1 mile of this active golden eagle nest was not included in the turbine siting corridors; therefore, WTGs would be set back a minimum of 1 mile from known eagle nests (WL-9). Other Project features, such as collection lines, may still be constructed within 1 mile of this eagle nest, creating potential for disturbance during the construction phase of the Project. There remains potential for direct mortality of ground-nesting avian species during construction activities. Ground disturbance could affect ground-nesting species through human disturbance or the potential for direct mortality (see table 3-15). As such, impacts are expected at the individual level but are not anticipated to be of a magnitude to affect species at a population or community level.

Issue Statement #7: Would avian and bat species of concern be affected by habitat loss and fragmentation, increased activity, and vehicular traffic during construction and operations of the Project resulting in population declines?

Avian and bat species of concern would be affected by habitat loss and fragmentation, increased activity, and vehicular traffic during construction and operations of the Project in the same ways as described for avian and bat species more generally in Issue Statement #1.

In addition to the EPMs described with Issue Statement #1, the Project would develop and implement eagle conservation practices as part of its BBCS to comply with regulatory requirements and seek to minimize the unintentional take of eagles (WL-3). If an eagle fatality does occur due to Project construction or O&M, the Project would notify the FWS within 24 hours (WL-8).

Issue Statement #8: What is the anticipated bat mortality associated with the Project from turbine blade collision or other wind facility operations impacts (i.e., barotrauma) that could be expected from the range of turbines being considered?

Fatalities resulting from collisions with turbines are expected to be the primary adverse effect on bat species. Bat fatality rates at the Foote Creek Rim Windpower Project in Wyoming have ranged from 0.6 to 2.4 bats/turbine/year (Young et al. 2003). It is also documented that bats are killed near turbines due to barotrauma caused by rapid air-pressure reduction near moving turbine blades that damages tissue and internal organs. The magnitude of effects of barotrauma on bats at wind facilities is not well known considering the many variables that could also cause fatality to bats at wind facilities, such as turbine collisions. One study at a wind facility in Canada concluded that 90 percent of bat fatalities involved individuals that showed signs of internal hemorrhaging consistent with barotrauma, but direct contact with turbine blades could be attributed as the cause of mortality for only approximately half of those bats, suggesting barotrauma was the cause of mortality for the remaining bats (Baerwald et al. 2008).

Prior to the start of construction, a BBCS would be developed and would outline measures to avoid and minimize bat mortality via direct strikes (WL-2). The Project would also perform postconstruction mortality surveys to calculate the fatality rate of bats (WL-4).

Total wind-swept area—the area where collisions and barotrauma could occur—for each potential turbine model is discussed in Issue Statement #3 (see 3-16). Barclay et al. (2007) concluded that taller towers are associated with increases in fatalities of bats when comparing turbines with hub heights between 78.7 and 308.4 feet. In a meta-analysis of 40 studies of North American wind energy facilities, Thompson et al. (2017) found no evidence that turbine height influences bat mortality although the authors excluded shorter lattice-style turbines used in Barclay et al. (2007). No publicly available metanalysis studies have been published for turbines with hub heights between 262.5 and 410.0 feet, however, to assess whether increased hub height has any impact on bat fatality rates.

Fatality estimates based on studies of other wind energy facilities in western North America should be considered tentative because each facility has unique ecological conditions and Project-specific features making it challenging to draw robust conclusions about the relationship between bat mortality and turbine size.

Issue Statement #9: Are there important resources for bats in the form of roost sites or hibernacula in the analysis area and, if so, is there potential for disturbance of these sites due to construction and operations of the Project?

There are formations in the analysis area that can develop karsts. Based on the climate in which they are located (arid/semiarid), the likelihood of karst features forming and providing suitable caves for bat

roosting is low. There is also potential for abandoned mines to serve as cave roosts in the analysis area, but the likelihood of bats using these sites is low because most mapped mine features are not underground. For a full discussion on mine resources in and near the Project Area, see section 3.7.4.1, “Geology.”

A BBCS would be developed and would outline measures to avoid and minimize impacts to roost sites and hibernacula (WL-2). Environmentally sensitive areas in and near the Project Area would be identified and the Project would seek to avoid or minimize impacts to these areas. Construction and operations personnel would be informed of the appropriate practices that could be applicable to avoid or minimize impacts when working in the vicinity of these areas (GEN-2). Routine O&M activities would only take place during daylight hours when bats are not active (GEN-7).

Project construction could also disturb rocky outcrops (approximately 31 acres [0.48 percent] within the siting corridors; Tetra Tech 2020d) and forested areas (approximately 53 acres [0.82 percent] within the siting corridors; section 3.14.4.1, “Land Cover”) that could provide roosting habitat for bats. Considering that the percentage of impacts within siting corridors for land cover types that may contain potential roosting substrate is relatively low compared to available potential roosting substrate in the area more generally, impacts are not anticipated at the individual, community, or population levels.

3.5.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.

3.5.6 Avian and Bat Species Conclusion

The risk of bird and bat mortality from turbine blade collision would be slightly increased for the Siemens Gamesa 6.0 MW turbines because they would have more total wind-swept area compared to the Vestas 5.6 MW turbines and GE 3.0 MW turbines. The relationship between turbine height and bird and bat mortality risk is unclear for the range of turbines being considered. Project construction and O&M would disturb roost sites and hibernacula for bats if present in the siting corridors in rocky outcrops (0.48 percent of the siting corridors) or forested habitat (0.82 percent of the siting corridors); however, bats could avoid these areas during construction, O&M, and decommissioning activities and return when activities cease and reclamation has been completed at each phase. Impacts are expected to individual birds and bats but would not be significant as bird and bat populations are not expected to be affected. Based on this analysis, the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA.

Ground-disturbing construction and operations activities would impact avian and bat habitat through the removal of vegetation used by birds for nesting, foraging, and brood-rearing. Construction disturbance and operations infrastructure would impact 1,471.3 acres of habitat (5.6 percent of the Project Area) until those areas were reclaimed following construction and again during decommissioning.

Anticipated bird fatalities from collisions with vehicles and met towers, and electrocution from aboveground collector lines, would be negligible, and there would be no expected population or community-level effects. The Project would develop and implement a BBCS to avoid and reduce potential impacts that may result from Project operations. ConnectGen has committed to measures that reduce the risk of collision and electrocution, including the installation of bird flight divertors and the use

of appropriate spacing of energized parts. Collision and electrocution effects are not anticipated to impact communities or populations and would end with decommissioning. Because golden and bald eagles have been documented in the Project Area, individuals of those species are considered at risk of injury and mortality from collision with operating turbine blades. The applicant has committed to obtaining an EITP and to implementing eagle-specific conservation measures and providing compensatory mitigation for anticipated take that cannot otherwise be practicably avoided if required by permit conditions of the EITP.

Project construction and decommissioning and, to a lesser extent, surface-disturbing activities during O&M, would disturb prey habitat and individual prey animals until activities cease or disturbed areas are reclaimed; these activities are not anticipated to impact individual raptors or raptor communities or populations. Construction activities would remove vegetation that could serve as substrate for nesting avian species in the siting corridors until disturbed areas are reclaimed. Although some birds would be displaced from nesting in the siting corridors, it is anticipated that they would use suitable habitat outside the siting corridors during construction disturbance. Noise and increased human presence from construction and O&M activities, equipment, and personnel would affect some individual birds' nesting success because of nest abandonment, direct mortality, reduced fitness and survivorship, and disturbance of nesting vegetation. Effects would decrease with the end of construction activities and cease with reclamation during decommissioning. A BBCS would be developed and implemented to avoid and reduce potential impacts to avian and bat species. Avian and bat species of concern would be impacted by habitat loss, increased activity, and vehicular traffic in the same ways described for avian and bat species more generally; populations are not anticipated to be affected. The Project would develop and implement eagle conservation practices to minimize the take of eagles, including setting wind turbines back at least 1 mile from known eagle nests.

3.6 Cultural Resources and Native American Concerns

Cultural resources are locations that contain the physical evidence of past human behavior that allow for its interpretation, including prehistoric or historic sites, buildings, structures, objects, or districts, and any associated artifacts, records, and material remains (Advisory Council on Historic Preservation [ACHP] 2009). Such resources are identifiable through field survey, historic documentation, or other sources such as oral history. A historic property is any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior (36 CFR 800.16(l)(1)). For clarification purposes, such resources are hereafter referred to as NRHP-eligible cultural resources. Resources of traditional religious and cultural importance to Native American tribes could be deemed eligible for listing on the NRHP (ACHP 2009). Additionally, Native American tribes, ethnic or religious groups, organizations, communities, or the public could consider specific cultural resources to be of cultural, historic, or religious importance, regardless of their NRHP eligibility.

3.6.1 Regulatory Background

The Project's interconnection with WAPA's Ault-Craig 345-kV transmission line constitutes a Federal undertaking pursuant to the regulations guiding Section 106 of the NHPA, as amended (36 CFR 800). Pursuant to NEPA and Section 106 compliance, WAPA is required to consider effects (or impacts in the terms of this EIS) on NRHP-eligible cultural resources from its undertaking and the Project as a connected action. Section 106 compliance would be achieved for the undertaking through consultation with consulting parties (36 CFR 800.3), identification of cultural resources (36 CFR 800.4), assessment of impacts to cultural resources per the criteria of adverse effects (36 CFR 800.5), and development and implementation of a programmatic agreement (PA) (section 1.3.2, "Federal Regulations") to address any identification efforts and assessment of effects that could not fully be determined prior to the approval of the undertaking (36 CFR 800.14), and for implementing the avoidance, minimization, or mitigation of adverse effects (36

CFR 800.6) to complete the Section 106 process in coordination with NEPA (36 CFR 800.8). The PA is provided in appendix B. The publication of the draft EIS with the draft PA was further part of public involvement process, meeting both the requirements of NEPA and Section 106.

As defined in Title 36 CFR 60.4, to be eligible for the NRHP, a resource must generally be over 50 years old; meet at least one of four criteria of eligibility for their association with either important events, important persons, distinctive character of composition, or information value; and possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and/or association (National Park Service [NPS] 1995). Regulations for the listing of properties in the NRHP are provided by 36 CFR 60, whereas the process of formally determining the eligibility of properties is defined by 36 CFR 63.

Additionally, Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10) require that Federal agencies exercise a higher standard of care when considering undertakings that could directly and adversely affect NHLs. NHLs are cultural resources recognized to possess exceptional value commemorating or illustrating the history of the United States. The law and regulations require that agencies, “to the maximum extent possible, undertake such planning and actions as could be necessary to minimize harm to such landmark.”

3.6.2 Data Sources

Data sources that provide information on identified cultural resources include the following:

- The Wyoming SHPO’s Cultural Records Office (WYCRO) and Colorado SHPO’s Office of Archaeology and Historic Preservation (OAHP) spatial and tabular file search data for the overall analysis area, including NRHP-listed historic properties, NHLs, and National Historic Trails
- Previous Class III field survey results for the Project siting corridors as presented in the WYCRO file search data, and from the Hermosa West Wind Farm Project (ERM 2010b)
- Tribal information regarding the presence/location of cultural resources of traditional religious and cultural importance to them, Traditional Cultural Properties or Places (TCPs) or resources of concern as identified in the WYCRO data
- Other data or data sources indicated by consulting party consultation or in comment to Project scoping

3.6.3 Analysis Area

The cultural resources analysis area is the area of potential effects (APE) for the Project, as defined by WAPA (per 36 CFR 800.16(1)(1)). The APE is the area within which NRHP-eligible cultural resources could sustain loss of integrity (as defined in 36 CFR 60.4) by alteration or destruction caused by the Project. The APE includes

- horizontally, the Project footprint, which entails the physical footprint of Project facilities within an approximately 26,000-acre area where Project facilities could be built;
- vertically, a maximum depth of 15 feet for the construction of the wind turbine foundations and a maximum height of 675 feet for construction of wind turbines; and
- a 10-mile zone from the Project Area boundary within which NRHP-eligible cultural resources’ “setting” and/or “feeling” are determined critical to the resource’s NRHP eligibility (figure 3-7; see section 3.6.5.2, “Methods of Analysis”).

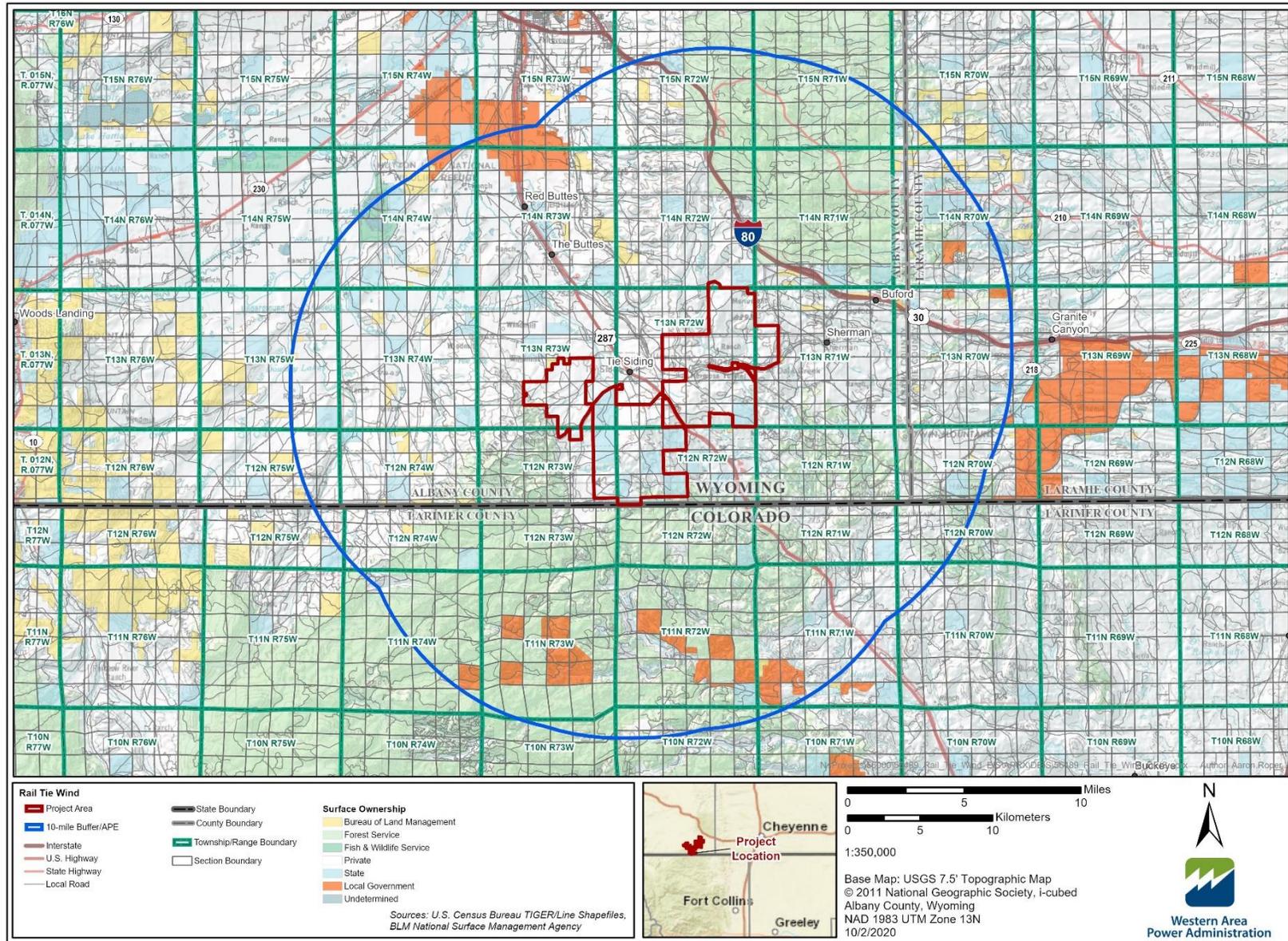


Figure 3-7. Cultural resources analysis area.

3.6.4 Baseline Description

The prehistoric chronology for southeastern Wyoming and northeastern Colorado is categorized into five major periods based on adaptive strategies and technological developments (table 3-18). These major periods are the Paleoindian, Early Archaic, Middle Archaic, Late Archaic, and Late Prehistoric (McNees et al. 2010). The end of the Late Prehistoric period generally also recognizes or overlaps a transition to the Contact and Historic periods. Previous investigations have shown that prehistoric peoples used the landscape throughout the entirety of the Prehistoric period and into the Historic period (McNees et al. 2010). Occasional surface finds of Clovis and Folsom projectile points indicate that humans have lived in southeastern Wyoming at least since at least the end of the Pleistocene geologic epoch.

Dating of the Paleoindian period in the region ranges between 12,000 and 8,000 radiocarbon years before present (B.P.) or 13,900 to 8,900 calendar years ago (Y.A.); however, evidence of the big game foraging tradition, which has formed the essential definition of Paleoindian adaptation, is generally scant.

The historic chronology of Wyoming and northern Colorado is divided into six periods: Early Historic, Pre-Territorial, Territorial, Expansion, Depression, and Modern (Wyoming SHPO 2016) (see table 3-18). The themes that are present through these various periods include Exploration, Transportation, Military, Resource Extraction, Settlement, and Ranching/Farming.

Westward U.S. expansion on the Emigrant Trails—including the Cherokee, Oregon, Lodge Pole Creek, and Overland Trails across southern Wyoming led to increased conflicts with the Native Americans who occupied the region and the establishment of many military forts there, such as Fort Sanders, Fort Steele, and Fort Halleck. The Union Pacific Transcontinental Railroad in 1862 brought more travelers and permanent settlers to southeast Wyoming. Railroad expansion increased stockraising, homesteading, and ranching activities throughout the territory. The invention of the automobile in the early twentieth century changed transportation and encouraged development of improved roads, such as the Lincoln Highway, leading to the development of the modern interstate system across the State.

Table 3-18. Characteristics of Cultural Periods in Southeastern Wyoming and Northeastern Colorado

Cultural Period	Date Range	Primary Characteristics
Paleoindian	12,000–8000 B.P. (13,900–8,900 Y.A.)	Highly mobile big game foragers characterized by large lanceolate projectile points, including fluted Clovis and Folsom projectile points.
Early Archaic	8000–5000 B.P. (8,900–5,800 Y.A.)	Hearths with little associated material culture; characterized by large side-notched projectile points/knives—typically referred to as early side-notched points.
Middle Archaic	5000–3000 B.P. (5,800–3,300 Y.A.)	Increase in activity across the landscape, probably a higher population density, and the increased frequency of deep, stylized pits and ground stone. Large side-notched points replaced with lanceolate and stemmed lanceolate (i.e., Duncan/Hanna and McKean) points.
Late Archaic	3,000–1500 B.P. (3,300–1,400 Y.A.)	Open camps containing large numbers of hearths and ground stone. Large, corner-notched projectile points, side-notched projectile points, and occasional cord-marked pottery.
Late Prehistoric	1,500–500 B.P. (1,400–500 Y.A.)	Introduction of new technology in the form of the bow and arrow and ceramics. Intensive exploitation of several important subsistence resources, including weedy seeds, tubers, pronghorn, and bison.
Protohistoric or Contact	A.D. 1500–1800	Introduction of the horse; changes in social organization. Diverse assemblages include metal knives, projectile points, glass beads, copper implements, and other European trade goods.
Early Historic	A.D. 1800–1842	Exploration and establishment of the Rocky Mountain Fur Trade, trading forts.
Pre-Territorial	A.D. 1842–1868	Emigrant Trails, wagon trails, establishment of mineral/mine prospects, first military forts/presence in region, passing of the Homestead Act.

Cultural Period	Date Range	Primary Characteristics
Territorial	A.D. 1868–1890	Arrival of the transcontinental railroad, establishment of Indian Territories; ranching, cattle and sheep herding, coal mining.
Expansion	A.D. 1890–1920	Railroad expansion, Stock Raising Homestead Act, World War I.
Depression	A.D. 1920–1939	End of World War I, Great Depression, droughts and agricultural recessions; energy exploration.
Modern	A.D. 1939–present	World War II, ranching, energy exploration, modern developments.

Sources: Modified from McNees et al. (2010) and Wyoming SHPO (2016).

WYCRO and OAHP file search results indicate that a total of 478 cultural resources (390 in Wyoming and 88 in Colorado) have been previously recorded within the overall APE. Of these, nine are within the Project siting corridors, and 469 are within the 10-mile zone.

Linear resources, consisting of historic trails, railroads, and wagon roads—of which there are 12—were counted as single resources, rather than the 55 individually recorded segments being counted separately. The resources identified within the file searches encompass a wide range of site types. Prehistoric resources are archaeologically identified as lithic scatters, open camps, hunting blinds, bison and pronghorn kill sites, stone circle and cairns, rock art, rockshelters, and complex multi-occupational open camps. Historic resources are archaeologically and historically identified as debris scatters, temporary to long-term stockherding and livestock raising sites, homesteads, trails, roads, bridges, railroads, stage stations, and tunnels, townsites, cemeteries, and monuments.

According to WYCRO and OAHP data, these 478 resources include 81 NRHP-eligible cultural resources (six of which are listed in the NRHP, including an NHL); 310 resources that have either been recommended or determined not eligible for inclusion in the NRHP, or are noncontributing segments of eligible linear resources; and 87 resources that remain unevaluated for the NRHP. The Ames Monument NHL is also a State Historic Site. WYCRO and OAHP data indicate that these 478 resources include at least two TCPs and 18 additional resources containing feature types of potential traditional religious cultural importance to Native Americans, one of which is near and could intersect Project siting corridors.

3.6.4.1 Cultural Resources Identified in Engagement of the Public or Consulting Parties

Parties participating in the initial Project scoping and Section 106 consultation processes additionally commented regarding several cultural resources of potential concern such as the following:

- Ames Monument NHL (48AB97) and Reed’s Rock
- Dale Creek Bridge (48AB359)
- Tie Siding Cemetery (48AB2728/48AB295)
- Willow Springs Bison Pound (48AB130)
- Cherokee Trail (48AB1447)
- Hermosa/Sherman Tunnel (48AB453)
- Sherman Townsite (48AB42)
- Union Pacific Railroad (UPRR) (48AB357)
- Overland Trail (48AB157)
- Lincoln Highway (48AB117)

These resources are included in the overall 478 cultural resources identified through analysis of WYCRO and OAHP data. In addition, the Wyoming SHPO identified Reed's Rock within the APE; Reed's Rock is not documented in WYCRO data. This resource is associated with quarrying stone for the Ames Monument NHL. Other data sources such as the NRHP database, National Historic Trail studies, BLM General Land Office plat maps, and the Hermosa West Wind Farm Project provided no additional information beyond those cultural resources identified in the WYCRO and OAHP file searches.

3.6.5 Impacts to Resource

This section describes the potential impacts to cultural resources associated with construction, O&M, and decommissioning of the Project. The NEPA analysis puts impacts to cultural resources into context through the lens of the NHPA, where impacts are considered adverse when the Federal undertaking could alter any of the characteristics that qualify the resource for inclusion in the NRHP in a manner that would diminish the integrity of the resource's location, design, setting materials, workmanship, feeling, or association (36 CFR 800.5(a)(1)). Only impacts to NRHP-eligible cultural resources are assessed as adverse effects under Section 106 of the NHPA. Adverse effects might be direct, indirect, or cumulative, including reasonably foreseeable effects caused by the undertaking that could occur later in time or be farther removed in distance (36 CFR 800.5(a)(1)). This includes the potential for impacts to aspects that make a resource of traditional or religious importance to concerned Native American tribes, should such resources be identified by stakeholders for inclusion in the NRHP.

3.6.5.1 Impact Indicators

Impacts to cultural resources, including those of Native American concern, could result should the following result from construction, O&M, or decommissioning of the Project:

- Physical or nonphysical change to the characteristics that make a cultural resource eligible for the NRHP or to the aspects of an existing resource of traditional or religious importance to concerned Native American tribes.

Physical and Nonphysical Impact Indicators

Physical impacts to cultural resources could include Project activities, such as ground disturbance from construction within the boundaries of an NRHP-eligible cultural resource, which could destroy or alter the characteristics that qualify the resource for inclusion in the NRHP.

Nonphysical impact indicators include introduction of visual or other intrusions into the setting of an NRHP-eligible cultural resource or alteration of the original feeling of the property. This could include the construction of new aboveground infrastructure, such as WTGs, that is visible or otherwise perceptible (auditorily, atmospherically) from an NRHP-eligible cultural resource, intruding on the integral setting of the resource or altering the integral feeling of the resource as experienced by the common observer—where setting and feeling are characteristics of the resource that contribute to its eligibility for inclusion in the NRHP. Nonphysical impacts would only be assessed for such resources that fall within the Project's limit of visibility within the 10-mile zone, or viewshed, for the major elements of Project development, which are the turbines, because resources not within the viewshed would not be exposed to potential visual impacts (figure 3-8). The distance of these visual impacts would be of greater range than and encompasses the extent of potential noise (auditory) or haze from construction dust or vehicle exhaust (atmospheric) impacts for the Project, and, therefore, would serve for analysis of all perceivable nonphysical impacts.

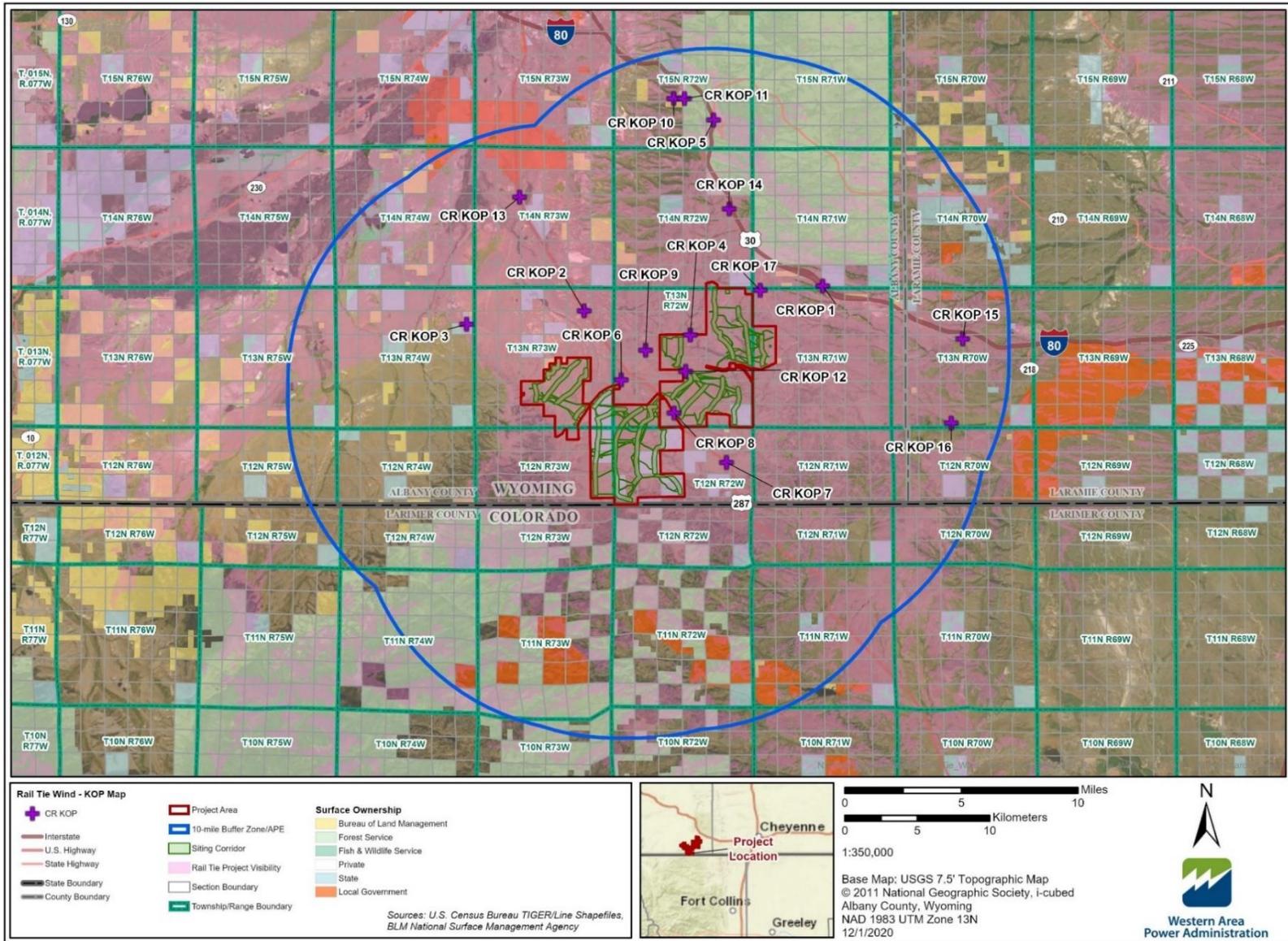


Figure 3-8. Cultural resources key observation points.

3.6.5.2 *Methods of Analysis*

The following steps were completed to analyze potential impacts to cultural resources:

- Existing records pertaining to cultural resources within the APE, as discussed below, were reviewed to determine if the Project would potentially result in physical or nonphysical impacts that could alter the characteristics of the resource that make it eligible for listing in the NRHP.
- Based on the review of existing records, an analysis of potential impacts to cultural resources was performed in relation to where the Project could result in physical ground disturbance or structural alteration on a NRHP-eligible cultural resource or nonphysical aboveground intrusion on a NRHP-eligible cultural resource where setting contributes to its NRHP eligibility, such as the visibility of Project facilities, including WTG development. The maximum potential impact from turbine design options was considered in the analyses.
- The physical impact analysis assesses potential impacts resulting from ground disturbance or structural alteration on previously identified cultural resources and the potential for unidentified cultural resources. This analysis gathers a list of known cultural resources and recommendations for avoidance of physical or nonphysical impacts to NRHP-eligible cultural resources, where practicable. Further planning measures are included per NHPA Section 106 regulations to address any inadvertent discovery of previously unidentified cultural resources, should they arise, during Project activities.
- The nonphysical impact analysis assesses potential impacts resulting from the visual intrusion of Project infrastructure, prominent turbine structures in particular, where the alteration of setting or feeling on a NRHP-eligible cultural resource would result in a substantial loss or reduction of characteristics that make the resource eligible for NRHP listing. This analysis gathers a list of NRHP-eligible cultural resources identified where installation of aboveground Project infrastructure could result in nonphysical impacts. Once assessed, impacts are addressed through avoidance, minimization, or mitigation under the Section 106 process.

Area of Potential Effects

Within the APE, the potential for physical impacts to cultural resources is analyzed within the Project siting corridors located within the Project Area boundary, equated with areas of potential Project ground disturbance, including overland vehicle traffic (see figure 3-8). The potential for nonphysical impacts to cultural resources is analyzed within the Project viewshed (see figure 3-8). The extension of analysis beyond the Project Area boundary to this 10-mile zone considers the limit of visual preeminence for nonphysical impacts from the Project, as visual preeminence is defined in “Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes” (Sullivan et al. 2012). The limit of visual preeminence is the determined cultural resource analysis area for potential visual impacts by WAPA, in consultation with Wyoming SHPO (WAPA 2020b; Wyoming SHPO 2020).

For the Project, turbine towers and blades represent the most prominent sources of potential visual impacts to cultural resources. Sullivan et al. (2012) note that it is at distances under 10 miles that turbine structures could become major sources of visual contrast and identify this as the limit of visual preeminence. It is within 10 miles where “the wind facility is a major focus of visual attention, drawing and holding visual attention. The facility could occupy a substantial portion of the field of view, with the repeated vertical lines of the towers contrasting strongly with horizontal landforms and blade motion and color contrasts also strongly attracting visual attention in some circumstances” (Sullivan et al. 2012). Beyond 10-mile mark, Sullivan et al. (2012) note that wind turbines could be visible but do not tend to dominate viewer focus on the landscape; they begin to blend with the background. Furthermore, when major landforms such as mountains dominate the landscape, as with the current Project Area, the wind

facility would not be visually dominant. Specifically, Sullivan et al. (2012) state that “despite the size of wind turbines and wind facilities, the open nature of the turbine layout could make it difficult for a wind facility to dominate views with prominent landforms, such as mountain ridges, because the wind turbines lack ‘visual weight.’” At distances where wind turbines could be visible but do not tend to dominate viewer focus on the landscape, and therefore present weak contrast within the setting of cultural resources, no adverse impacts would result consistent with Wyoming SHPO guidance (see the Cultural Resources Evaluation Addendum: Historic Properties Visual Impact Assessment [HPVIA] [Tetra Tech 2020h]). For this reason, the APE for cultural resources extends to 10 miles, whereas the visual analysis area extends for greater distances (see section 3.2., “Aesthetics and Visual Resources”).

Based on a review of existing cultural resources data, including any tribal or applicable ethnographic information received throughout the consultation process, the analysis of potential impacts to cultural resources addresses all known cultural resources within the APE. NRHP-eligible cultural resources within the Project siting corridors, where physical impacts could occur, are listed in table 3-19 (see figure 3-8). For NRHP-eligible cultural resources identified within the Project viewshed in the 10-mile zone, KOPs were selected where suitable to analyze the potential nonphysical impact to the NRHP-eligible cultural resource (SWCA Environmental Consultants [SWCA] 2020a; Tetra Tech 2020h) (table 3-20; see figure 3-8). A HPVIA was conducted for this purpose to assess potential visual impacts of the Project on cultural resources where setting and feeling are important aspects contributing to the resource’s NRHP eligibility (Tetra Tech 2020h). The HPVIA further found that the Project would not result in significant impacts to the setting of two sites, the NRHP-listed Barn at Oxford Ranch (48AB527) and the archaeological site 48LA207 (prehistoric hunting blinds) (Tetra Tech 2020h).

The HPVIA assessment concluded that the following sites identified during public scoping or in Section 106 consultation, including Sherman Townsite, Willow Spring Station, Tie Siding Cemetery, and Willow Springs Bison Pound, are archaeological resources where setting is not an important factor to their NRHP eligibility. Likewise, the Dale Creek Bridge and the Hermosa/Sherman Tunnel are eligible primarily for their engineering, and setting is not an important factor to their NRHP eligibility. Although the Dale Creek Bridge and the Hermosa/Sherman Tunnel do not themselves have historic setting concerns, these sites are features along the UPRR where setting is important to its NRHP eligibility.

The HPVIA found adverse effects to the Overland Trail, Segments 225 and 226 (48AB157), and Ames Monument NHL (48AB97) (Tetra Tech 2020h). Although the HPVIA (Tetra Tech 2020h) left the assessment of impacts to the UPRR (48AB357) and Cheyenne Pass Road (48AB543) undetermined, the NEPA analysis herein finds that the historic UPRR would receive strong visual impacts from Project turbine development due to the proximity of the railroad route, which crosses the Project Area, and that the Cheyenne Pass Road has contributing segments in the Project viewshed and 10-mile APE that would receive moderate visual impacts due to potential turbine proximity (within just over 3.0 miles).

Project impacts to NRHP-eligible cultural resources, including resources of traditional religious or cultural importance to Native American tribes or TCPs, that are determined to be adverse effects would require avoidance, minimization, or mitigation of these effects in accordance with the NHPA Section 106 process (36 CFR 800). A PA has been developed in accordance with the Section 106 process to address the further identification of NRHP-eligible cultural resources in the APE, ensure consideration of effects on all NRHP-eligible cultural resources, and direct the treatment of NRHP-eligible cultural resources to a resolution of adverse effects from the undertaking in completing the Section 106 process (see appendix B and section 3.6.1, “Regulatory Background”). All adverse effects to NRHP-eligible cultural resources from the Project would be resolved through a Historic Properties Treatment Plan (HPTP) under the PA and in accordance with the regulations guiding the Section 106 process (36 CFR 800). The PA additionally addresses special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States.

Table 3-19. Summary of Known NRHP-Eligible Cultural Resources within the Project Siting Corridors where Adverse Physical Impacts Could Occur if Not Avoided, Minimized, or Mitigated

Smithsonian Number	Description	NRHP Status
48AB152_31	Lincoln Highway 1912	Unevaluated segment, eligible resource
48AB357	UPRR	Eligible
48AB453	Hermosa/Sherman Tunnel	Eligible

¹Potential disturbance from Project construction.

Table 3-20. Summary of Known NRHP-Eligible Cultural Resources within the Analysis Area (the 10-mile zone of the APE) where Adverse Nonphysical Impacts Could Occur if Not Avoided, Minimized, or Mitigated

Smithsonian Number	Description	NRHP Status	KOP Number (HPVIA KOP Number ¹)
48AB1067	Tree Rock	Eligible, Wyoming SHPO concurrence	1 (HPVIA KOP 1)
48AB1447	Cherokee Trail	Eligible, Wyoming SHPO concurrence	2 and 3 (HPVIA KOP 2 and 3)
48AB153	Lincoln Monument	Eligible	5 (HPVIA KOP 4)
48AB157_1, _14, _225, _226	Overland Trail	Contributing segments, eligible resource	6 (at Segment 1) (HPVIA KOP 5) 7 (at Segment 14) (HPVIA KOP 6) 8 (at Segments 225 and 226) (HPVIA KOP 7)
48AB354_1, _12	Lodgepole Creek Trail	Contributing segments, eligible resource	10/11 (HPVIA KOP 8/9)
48AB357	UPRR	Eligible, Wyoming SHPO concurrence	4, 9, 12, and 13
48AB543_1	Cheyenne Pass Road	Contributing segment, eligible resource	14 (HPVIA KOP 10)
48LA117_22	Lincoln Highway 1920	Contributing segment, eligible resource	15 (HPVIA KOP 11)
48LA613	Cheyenne-Twin Mountains Wagon Road	Eligible, Wyoming SHPO concurrence	16 (HPVIA KOP 12)
48AB97	Ames Monument NHL	NHL, listed (A and C), Wyoming SHPO concurrence	17 (HPVIA KOP 13)

¹KOP numbers corresponding to those used in the HPVIA (Tetra Tech 2020h).

3.6.5.3 Proposed Action

Issue Statement #1: How would ground disturbance from the Project potentially have physical impacts on cultural resources?

Project construction activities could result in potential impacts to cultural resources. Ground-disturbing construction activities could physically alter or destroy cultural resources in part or in whole. In terms of NRHP-eligible cultural resources and/or resources of traditional or religious cultural importance to Native American tribes, such impacts could alter the characteristics of the resource—including integrity of setting or feeling—that make it eligible for NRHP listing.

Intensive field surveys for cultural resources identification would proceed within areas of proposed Project ground disturbance within the Project siting corridors as an EPM. Any NRHP-eligible cultural resources identified during survey that could be adversely affected would have adverse effects resolved pursuant to Section 106 of the NHPA before the Project would be approved by WAPA to proceed in the area of the

NRHP-eligible cultural resource under the terms of the PA. Additionally, other previously unidentified cultural resources, such as buried archaeological materials, could be discovered through ground-disturbing activities after WAPA approval. Any adverse effects resulting from Project impacts to cultural resources after WAPA approval would be addressed in accordance with an inadvertent discovery plan specified in the PA. All adverse effects to NRHP-eligible cultural resources from the Project would be resolved through a HPTP under the PA (see appendix B) and in accordance with the regulations guiding the Section 106 process (36 CFR 800).

EPMs/construction practices for protection of cultural resources related to avoidance of physical impacts include Project design or micro-siting to relocate or reroute ground-disturbing infrastructure away from the resource (GEN-2). Construction travel would be restricted to existing roads and permanent or temporary access roads identified in the final Project Site Plan (GEN-3). When physical avoidance is not possible, additional measures would include boring subsurface infrastructure such as utility lines away from sensitive cultural resources, where reasonable, and co-location with existing similar infrastructure or in areas of previous or existing disturbance to limit introduction of additional elements of alteration on the cultural resource. Where avoidance is not fully possible, EPMs/construction practices for cultural resources would seek to minimize impacts to NRHP-eligible cultural resources by minimizing the area and choosing the placement of ground disturbance to reduce potential impacts. Applicable EPMs to the avoidance and minimization of impacts to cultural resources include Cultural Resources (CR)-1, CR-2, CR-3, CR-4, CR-5, Hazardous Materials (HAZ)-2, GEO-1, GEO-2, GEO-5 (see table 2-6). Other measures for avoidance, minimization, and mitigation for resolving adverse effects are addressed in the PA and will be included in the treatment plan(s) tiering to the PA (appendix B).

A total of nine previously recorded cultural resources are located either within or in immediate proximity to the Project siting corridors and could be exposed to physical impacts from ground-disturbing Project activities if not avoided by Project design or treated by minimization or mitigation measures under the PA. These cultural resources include three known NRHP-eligible cultural resources, presented above in table 3-19. The remaining six resources include two segments of the historic Overland Trail (48AB157_17 and 48AB157_133), that do not contribute to that trail's NRHP eligibility, and three prehistoric cultural resources (48AB34, 48AB1935, 48AB1936) and two historic cultural resources (48AB1861 and 48AB1937) that are not eligible for inclusion in the NRHP.

Approximately 1,840 acres of disturbance is planned within the Project siting corridors (see table 2-1). Within the 2,198 acres of Class III cultural resources survey conducted for the Hermosa West Wind Farm Project in the current Project vicinity, and which used similar siting corridors, six cultural resources (excluding isolated resources) were identified. Cultural resources survey for areas of Project disturbance within the Project siting corridors is planned to identify and evaluate any additional cultural resources within this area, and assess potential physical (and potentially nonphysical) impacts to those resources evaluated as eligible for the NRHP or those that contain features of potential importance to Native American tribes.

Issue Statement #2: How would Project components potentially have nonphysical impacts to cultural resources?

The introduction of aboveground infrastructure for the Project could result in potential impacts to cultural resources. Postconstruction aboveground infrastructure could cause nonphysical impacts to cultural resources (such as visual, auditory, or atmospheric impacts). Nonphysical impacts could alter the characteristics of an NRHP-eligible cultural resource that make it eligible for the NRHP, at properties where integrity of setting or feeling are important to their NRHP eligibility.

EPMs/construction practices for protection of cultural resources related to avoidance or minimization of nonphysical impacts would include placement of aboveground infrastructure (i.e., non-turbine) to blend in with the surrounding vegetation/environment, using setbacks to distance infrastructure from sensitive cultural resources, co-location of infrastructure with other existing disturbances/similar infrastructure, alterations to aspects of artificial nighttime lighting, and reclamation and revegetation of ground disturbance and landscapes to approximate original conditions. Applicable EPMs include CR-5, VIS-1, VIS-2, VIS-3, VIS-4, and VIS-5 (see table 2-6). Other measures for avoidance, minimization, and mitigation of adverse effects on NRHP-eligible cultural resources are stipulated in the PA for the Project and the treatment plan(s) tiering to the PA.

The 10 known NRHP-eligible cultural resources that could be nonphysically impacted by aboveground Project infrastructure and their associated KOPs (if suitable) are presented in table 3-21 (see also table 3-20). Field assessments from the designated KOPs for NRHP-eligible cultural resources and desktop assessment for nonphysical impacts to these NRHP-eligible cultural resources have been conducted. For cultural resources, the visual contrast rating (VCR) process is the same as that conducted for Aesthetics and Visual Resources, where the degrees of visual change ranges from none to strong (see table 3-2); however, the focus of the VCR analysis for cultural resources is placed on assessing impacts to each resource’s integrity. Based on the VCR for these resources, the impacts would range from the potential for no impact (“No”) to the potential for strong impact (“Strong”) (see table 3-2).

Table 3-21. Assessment of Nonphysical Impacts to NRHP-Eligible Cultural Resources

Smithsonian Number	Description	KOP Number	Approximate Nearest Distance to Project Siting Corridor (miles)	Level of Impact ¹ (Section 106 Effects)
48AB1067	Tree Rock	1	3.3	Weak (No Adverse Effect)
48AB1447	Cherokee Trail	2 and 3	2.0 and 3.8	Strong ² (Adverse Effect)
48AB153	Lincoln Monument	5	7.2	Weak (No Adverse Effect)
48AB157_1, _14, _225, _226	Overland Trail	6 (at Segment 1) 7 (at Segment 14) 8 (at Segments 225 and 226)	0.2, 1.6, and 0.3	Strong (Adverse Effect)
48AB354_1, _12	Lodgepole Creek Trail	10/11	8.3 and 8.2	Weak (No Adverse Effect)
48AB357	UPRR	4, 9, 12, and 13	0.3, 0.7, 0.0, and 7.1	Strong (Adverse Effect)
48AB543_1	Cheyenne Pass Road	14	3.4	Moderate (Adverse Effect)
48LA117_22	Lincoln Highway 1920	15	8.2	Weak (No Adverse Effect)
48LA613	Cheyenne-Twin Mountains Wagon Road	16	8.4	No (No Adverse Effect)
48AB97	Ames Monument NHL and Reed’s Rock	17	1.1	Strong (Adverse Effect)

¹ See table 3-2.

² Assuming a sufficiently intact segment can be identified; this site currently lacks field verification.

Programmatic Agreement

Further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources and resources of traditional religious or cultural importance to Native American tribes or TCPs—per NHPA Section 106 regulations—are specified in the PA. The

PA also includes measures to address any inadvertent discovery of unidentified subsurface cultural resources should they arise during ground-disturbing activities.

Avoidance of impacts through design and micrositing of Project infrastructure is prioritized under the PA. In cases where avoidance is not feasible, the PA specifies the implementation of minimization measures if feasible. Minimization measures could include boring subsurface infrastructure away from sensitive cultural resources where reasonable, co-location with existing similar infrastructure or in areas of previous or existing disturbance, placement of aboveground infrastructure to blend in with the surrounding vegetation and/or environment, using setbacks to distance infrastructure from sensitive cultural resources, alterations to aspects of lighting (or similar practices), and/or reclamation and revegetation of ground disturbance and landscapes to approximate original conditions. These measures would be further supported by monitoring or introduction of protection measures under the PA such as temporary construction fencing as appropriate. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources, and would include and be further supported by a Monitoring and Discoveries Plan under the PA. The PA specifies steps by WAPA and other consulting parties to be taken prior to construction and during O&M of the Project to comply with the NHPA. The final PA is included as appendix B of this EIS.

Nonphysical impacts would include significant impacts to the visual setting for the Ames Monument NHL and other NRHP-eligible sites where setting and feeling are factors of their eligibility. With the implementation of mitigation measures under the PA, the impact intensity of the Project would be offset and likely reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be long term through the life of the Project.

3.6.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to cultural resources would occur from the Project and existing conditions and trends that cultural resources are undergoing would continue. Therefore, the No Action Alternative would result in no added sources of, and would not cause, new impacts or adverse effects on cultural resources.

3.6.6 Cultural Resources and Native American Concerns Conclusion

The Project would not physically impact known NRHP-eligible cultural resources or known resources of potential traditional or religious cultural importance to Native Americans, as avoidance of these resources, as well as other cultural resources, where possible, is planned. If not avoidable, the PA further addresses the minimization and mitigation of physical impacts and adverse effects. The Project would result in significant nonphysical impacts to known NRHP-eligible cultural resources where setting and/or feeling are important characteristics contributing to the site's NRHP eligibility, such as the Ames Monument NHL, and possibly to resources of potential tribal importance, should they be identified in the Project viewshed within the 10-mile zone of the APE during the consultation process, or newly identified during the Class III survey for the Project. Implementation of mitigation measures under the PA, including an HPTP, would resolve adverse effects under the NHPA and provide an offset for significant impacts identified in this NEPA process.

3.7 Geology, Soil, and Mineral Resources

This section describes the existing physiographic conditions and the potential impacts to geology, geologic hazards, soils, and mineral potential.

3.7.1 Regulatory Background

There are several Federal and State laws that provide the regulatory framework for understanding the context of geology and soils for the Project.

3.7.1.1 Federal Regulations

The Federal law governing locatable minerals (metallic and nonmetallic minerals, including gold, silver, lead, copper, zinc, mica, gypsum, etc.) is the General Mining Law of 1872, which declared all valuable mineral deposits on public lands belonging to the United States to be open to exploration and purchase (BLM 2020a). The Mineral Leasing Act of 1920 is a Federal law that authorizes and governs leasing of public lands for developing deposits of leasable minerals, including coal, petroleum, natural gas, and other hydrocarbons, in addition to phosphates, sodium, sulfur, and potassium. Saleable minerals are common mineral materials, not identified as locatable or leasable, that include sand, gravel, roadbed, ballast, and clay and are sold by contract with the Federal government. Saleable minerals are regulated under the Mineral Material Act of July 23, 1947, as amended, and the Surface Use and Occupancy Act of July 23, 1955 (BLM 2020a).

3.7.1.2 State Regulations

The Wyoming Office of State Lands and Investments helps administer oil and gas, metallic/nonmetallic, and coal lease assignments on Wyoming State lands for the Board of Land Commissioners. Oil and gas leasing on State Trust Lands is guided by W.S. 36-6-101 as well as Chapter 18 of the Rules and Regulations of the Board of Land Commissioners (Wyoming Office of State Lands and Investments 2020a). Solid mineral leasing on State land is guided by W.S. 36-6-101, as well as Chapters 19–25 of the Rules and Regulations of the Board of Land Commissioners (Wyoming Office of State Lands and Investments 2020b).

Wyoming has a severed mineral estate. Under W.S. 30-5-402(a), any oil and gas operator having the right to underlying resources could locate and enter the land for all necessary reasons to conduct oil and gas operations or to develop oil and gas resources underlying the surface.

3.7.2 Data Sources

Data used to characterize the baseline and analyze the impacts to geologic and soil resources from the Project include the following sources:

- WYDEQ for information regarding mines (WYDEQ 2020a)
- USGS for seismic hazards (USGS 2020a)
- BLM for land and mineral system reports (BLM 2020b)
- Publicly available GIS data

Geotechnical investigations were conducted west of U.S. 287 in 2009 and 2010 (Black and Veatch 2009, 2010), and east of U.S. 287 in 2019 (Terracon 2020). Results of the geotechnical investigations were used

to inform baseline characterization and analyze the impacts to geologic and soil resources. Further information, research, and data to support the findings of the following analysis can be found within the “Rail Tie Wind Project Reconnaissance Level Assessment” (Tetra Tech 2021b).

3.7.3 Analysis Area

For the purposes of evaluating impacts to geology, soils, and mineral resources, the analysis area is the Project Area.

3.7.4 Baseline Description

3.7.4.1 Geology

The Project Area is west of the Laramie Range, which is composed of Precambrian-age rocks that also underly the analysis area (Terracon 2020; WSGS 2007). Pennsylvanian and Permian sedimentary rocks and Quaternary deposits overlay the Precambrian rocks in the west and central portions of the analysis area. The younger sedimentary rocks overlying the much older Precambrian rocks indicate a long period of erosion associated with the episodic uplift of the Ancestral Rocky Mountains (Erathem-Vanir Geological Consultants 2010), a complex of northwesterly uplifts of Late Paleozoic age. As a result of the Ancestral Rocky Mountains uplift, all Paleozoic-aged rocks older than Pennsylvanian age were eroded from the analysis area.

3.7.4.2 Geologic Units within the Project Area

According to recent geologic mapping, the following four categories of geologic units are present in the analysis area (Ver Ploeg and Boyd 2007) (figure 3-9):

- **Younger alluvium** – alluvial sediments consisting of poorly and unconsolidated silt, sand, and gravel that date from the Holocene (no more than 11,700 years old). These sediments are found as small deposits scattered across the Project Area, primarily associated with modern drainages and streams.
- **Older alluvium** – alluvium sediments deposited as part of alluvial fans or terraces that consist of poorly sorted silt, sand, and gravel with cobbles and boulders, sometimes associated with debris flows, that date from the Pleistocene (11,700 years old–2.58 million years old [Ma]). These sediments are found primarily in the west of the Project Area and are usually no more than 10 feet (3.05 m) deep.
- **Casper and Fountain formations, undivided** – sandstones interbedded with limestone and dolomite units that date from the Pennsylvanian (Casper Formation) to Permian (Casper and Fountain formations) (323–251 Ma). These formations are often mapped as a single unit and represent deposition during the retreat of a shallow seaway that was present across much of western North America but had fully retreated by the Permian and preserves a range of depositional environments from shallow marine to fully terrestrial. These sediments are found in the western Project Area, both at the surface and likely underlying the alluvial sediments in this area.
- **Igneous and metasedimentary rocks** – Plutonic igneous rocks formed from the slow cooling of magma in the crust, called the Sherman Granite, are present across much of the central and eastern Project Area, where they likely underlie soil formation (Terracon 2020). Small outcrops of metasedimentary rocks, primarily gneiss, which formed from the high temperature and pressure alteration of parent rocks, are present in the northern part of the central Project Area.

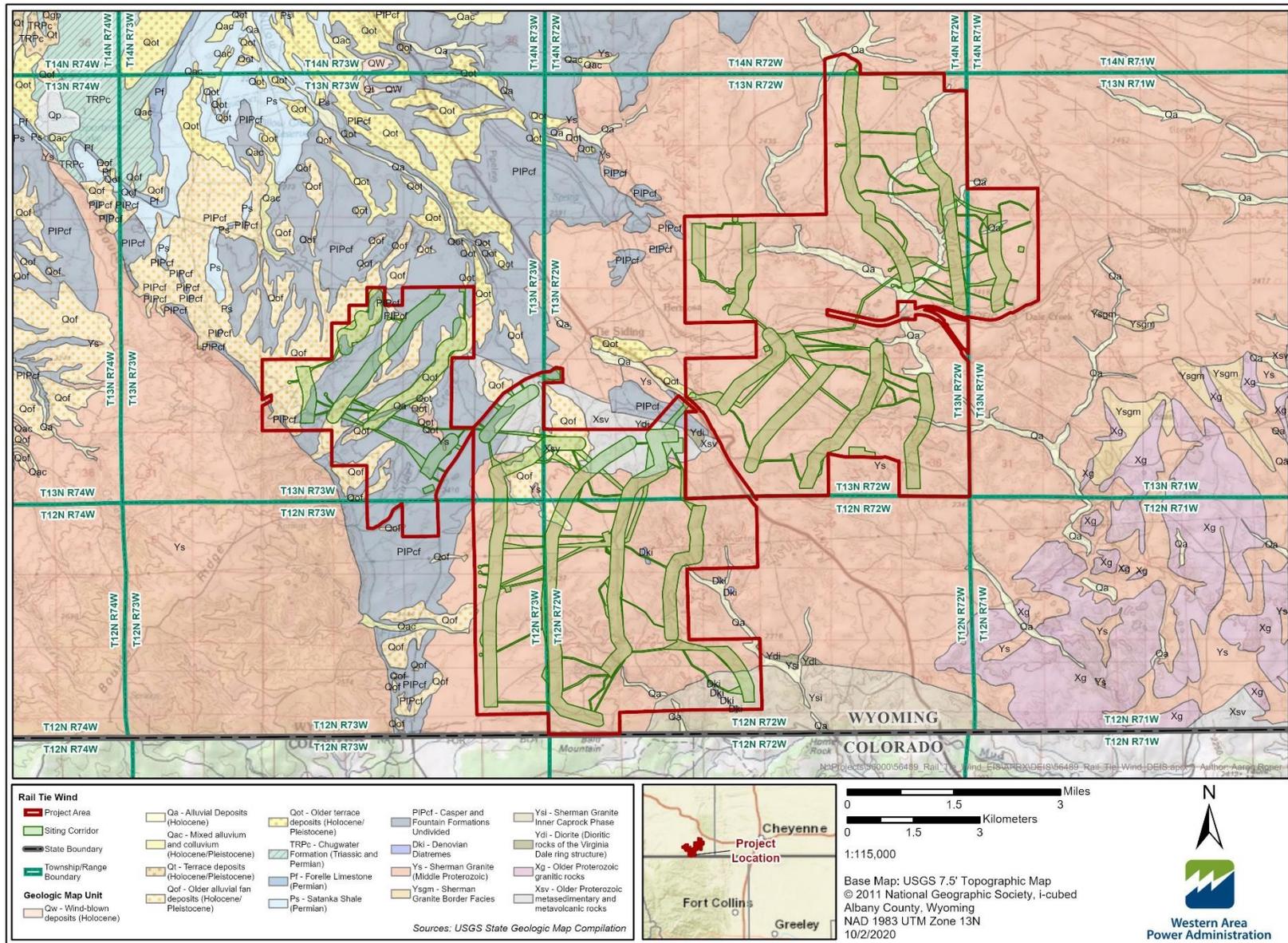


Figure 3-9. Mapped geologic units within the Project Area.

Geologic Hazards

A geologic hazard is one of several types of geologic conditions that can cause damage or loss of property and life. Geologic hazards vary widely by region and range from volcanic eruptions to earthquakes to avalanches. The geologic hazards with the highest likelihood to occur in Albany County, Wyoming, include earthquakes, landslides, and subsidence. The closest known landslide hazard areas are located approximately 20 miles to the west of the analysis area in the Laramie Range. No areas of subsidence hazards have been mapped or identified within the analysis area.

The analysis area is within a region of very low to moderately low earthquake risk (USGS 2020a). There are several mapped faults in the analysis area between 40 and 70 million years old, but no Quaternary-aged faults are mapped within Albany County. Quaternary faults are often an indication of possible recent seismic activity, but the area has experienced earthquakes historically. Since 1871, more than 30 magnitude 3.0 and greater earthquakes and hundreds of smaller magnitude earthquakes have been felt in Albany County with the largest being a magnitude 6.2 to 6.5 event in 1882 between Laramie, Wyoming, and Estes Park, Colorado (WSGS 2002).

Mineral Development

Aggregates (sand and gravel) and other saleable minerals have the most likely development scenario for the analysis area. The unconsolidated nature of the sedimentary surface geology and the presence of alluvial deposits near the surface provide opportunities for aggregate development. The Casper Formation is quarried locally for limestone and gravel (Daub and Associates, Inc. 2010). Multiple historic gravel pits are present within the analysis area but there are no active aggregate mining operations (WYDEQ 2020a).

Devonian and Precambrian kimberlite pipes (i.e., vertical structures of kimberlite) in the analysis area have the potential for economic development because they could contain diamonds and semiprecious indicator minerals. No historic or active kimberlite mines are located within the analysis area, but diamond-producing kimberlites have been discovered nearby. The Kelsey Lake Diamond Mine was a kimberlite mine across the border in Colorado, approximately 1 mile south of the analysis area, that was mined for diamonds for 6 years and produced both gem quality and industrial diamonds but closed in 2002 because of a lack of financial viability (Daub and Associates, Inc. 2010).

Petroleum reserves have been found in other areas of Wyoming within the Casper Formation, a Pennsylvanian to Permian-aged sedimentary rock that exists within the analysis area; however, it is unlikely that any oil deposits are present in the analysis area because the Casper Formation is too close to the surface to have trapped hydrocarbons in this area. The closest developed oil fields, the Little Laramie, Big Hollow, and Herrick Fields, are located approximately 30 miles northwest of the analysis area (Daub and Associates, Inc. 2010). No active oil and gas wells are present within the analysis area.

Other minerals with the potential to occur in the analysis area or that have been identified nearby include uranium, gypsum, natural gas, coal, coalbed methane, and carbon dioxide. Uranium deposits have been identified approximately 3 miles east of the analysis area, but uranium is not currently mined in the area (Daub and Associates, Inc. 2010). None of these minerals are thought to have the potential for being commercially produced from the formations present in the analysis area.

An economic analysis of mineral resources in the analysis area concluded that except for a few isolated locations with sand and gravel resources, existing economic conditions do not support mineral resource development opportunities in the Project Area (Daub and Associates, Inc. 2010).

3.7.4.3 Soils

Soils in the analysis area are generally shallow (less than 40 inches to bedrock) and derived from weathered bedrock and alluvial deposits. The surface soils across the analysis area are typically reddish-brown, fine- to coarse-grained clayey sand with varying amounts of gravel, with loose to medium density and approximately 2 to 5 inches of root penetration (Terracon 2020). The southeastern portion of the analysis area contains shallow, gravelly soils derived from granite bedrock whereas the western portion of the analysis area contains soils derived from limestone. Rock outcrops are present and common throughout the analysis area. Just three individual soil series cover approximately 66 percent of the Project Area. Approximately 38 percent of the soils in the analysis area are associated with bedrock outcrops. Only one soil map unit (Tieside-Pilotpeak-Rock outcrop complex) was identified with moderate to moderately high susceptibility to erosion by water (K-factor of 0.32), which covers approximately 1,678 acres of the analysis area. Soils with moderate to high susceptibility to erosion by wind cover 4,868 acres of the analysis area. Most of the soils in the analysis area are classified as having a low potential for concrete corrosion; however, three soil map units, approximately 217 acres, are classified as having a moderate potential for concrete corrosion. Approximately 9,364 acres of soils in the analysis area are classified as having a moderate or high potential for steel corrosion. No unique farmland soils are found within the analysis area, and approximately 4.2 percent of the soils in the analysis area are associated with prime farmland (2 percent) and farmland of statewide importance (2.2 percent), none of which is currently being used for agriculture.

3.7.5 Impacts to Resource

This section describes potential impacts to soil and mineral resources and the potential for geologic hazards associated with construction of the Project. O&M and decommissioning activities are not expected to have any effect on geologic, soil, or mineral resources.

3.7.5.1 Impact Indicators

The following indicators have been estimated to provide the context and intensity of impacts expected from the Project as they relate to geology, soils, and mineral resources:

- Acres of construction disturbance within documented landslide areas.
- Restriction or limitation of future access to mineral exploration and development.
- Acres of construction disturbance in soils lacking suitable geotechnical characteristics for construction.
- Acres of construction disturbance in undisturbed, highly erodible soils.
- Acres of construction disturbance in prime farmland and soils with low reclamation potential.

3.7.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to geologic, soil, and mineral resources.

- Acres of land with high landslide potential were reviewed to determine if Project construction would increase the potential for landslides or seismic hazards.
- Federal subsurface mineral rights were identified in the analysis area and cross-referenced with future mineral extraction opportunities to determine mineral (and petroleum) resource potential and if Project construction would limit or restrict access to them.
- Soil survey maps were reviewed to determine if existing soil types have geotechnical and chemical characteristics suitable/unsuitable for construction activities.

- Soil survey maps were reviewed to determine if existing soil types are highly erodible prone to soil erosion from ground disturbance.
- Soil survey maps were reviewed to determine if existing soil types are sensitive and if they would have low reclamation potential following ground disturbance.

3.7.5.3 Proposed Action

Issue Statement #1: Would construction of the Project lead to increased potential for geologic hazards, (i.e., landslides, seismic activity) in the Project Area?

Construction of the Project could result in increased potential for geological hazards in the Project Area, including landslides and potential seismic activity. As discussed in section 3.7.4.1, “Geology,” the potential for seismic activity in the Project Area is very low based on historical data and the absence of Quaternary-aged faults. Landslide potential in the Project Area is also low with the nearest landslide hazard area approximately 20 miles from Project infrastructure.

Design features and EPMs (see table 2-6) would reduce the likelihood of landslides and the impact of potential seismic events. For example, temporary ground disturbance will be limited to the minimum amount necessary (GEO-1), and ground disturbance in areas of highly erodible soils will be avoided to the extent practicable (GEO-2). Geotechnical engineering would identify and avoid any localized unstable slopes and minimize the potential for damage from seismic activity during facility design. Structures would be built to Federal- and State-required standards and industry best management practices (BMPs) for unstable slopes and seismicity. Roads would be designed to avoid steep slopes (GEO-3).

Issue Statement #2: Would construction of the Project limit or restrict access to minerals and/or oil and gas exploration or development in the Project Area?

As discussed in section 3.7.4.1, “Geology,” oil, gas, aggregate, and other mineral extraction activities are not currently occurring within the Project Area. Petroleum deposits are considered unlikely within the Project Area, and other minerals, including uranium, gypsum, natural gas, coal, coalbed methane, and carbon dioxide are not thought to be present in quantities that would support commercial production. Kimberlite containing deposits likely exist within the analysis area; however, studies indicate potential deposits are not within the siting corridors. There are no historical or currently operating kimberlite mines identified within the analysis area, and kimberlite outcrops are rare and localized.

An economic analysis of mineral resources (Daub and Associates, Inc. 2010) concluded that except for a few localities of sand and gravel resources, existing economic conditions do not support mineral resource extraction within the analysis area. Based on this analysis, impacts resulting from construction and operations of the Project are expected to be minimal due to the lack of economically viable mineral resources.

The Wyoming Industrial Development Information and Siting Act (W.S. 35-12) requires wind energy projects of the scale of the Project to be reviewed and approved by the State’s ISC. The ISC provides protection to mineral rights owners by requiring all jurisdictional wind energy projects to notify all mineral rights owners prior to receiving an Industrial Siting Section 109 permit (ISC Rules Ch. 1, 9(g)). To the extent practicable, all mineral rights owners would be notified of Project plans and persons to contact for additional information prior to the initiation of Project construction. ConnectGen would also place public notices in local newspapers for those mineral rights owners who cannot be identified.

Issue Statement #3: Are the soils in the Project Area suitable for the infrastructure proposed for the Project?

Soils in the Project Area are suitable for the Project infrastructure. As described in section 3.7.4.3, “Soils,” no soil map units exhibit high susceptibility to wind and/or water erosion. Of the 1,471 acres of construction disturbance for the Project, 379 acres (25.8 percent) are classified as having moderately low susceptibility to wind and water erosion, and 1,092 acres (74.2 percent) are classified as having moderate susceptibility to wind and water erosion (table 3-22).

Table 3-22. Soils in the Project Area

Soil Map Unit Name	Soil Map Unit Symbol	K-Factor	Wind Erodibility Group	Acres
Access Roads				
Boyle-Rock outcrop complex, 5 to 25 percent slopes	124	0.23	5	7.1
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	110.7
Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes	227	0.24	6	8.7
Rock outcrop-Rogert complex, 25 to 99 percent slopes	215	0.24	8	21.6
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	170.2
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	243	0.27	3	28.1
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	130	0.27	3	4.0
Dalecreek-Kovich complex, 0 to 9 percent slopes	149	0.28	3	1.3
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	39.0
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	133.4
Canburn loam, 1 to 4 percent slopes	132	0.29	4L	0.6
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	33.9
Rock outcrop-Cathedral complex, 20 to 40 percent slopes	212	0.36	N/A	6.5
Access Road Loops				
Boyle-Rock outcrop complex, 5 to 25 percent slopes	124	0.23	5	1.7
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	8.9
Rock outcrop-Rogert complex, 25 to 99 percent slopes	215	0.24	8	2.9
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	17.6
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	130	0.27	3	0.0
Dalecreek-Kovich complex, 0 to 9 percent slopes	149	0.28	3	0.8
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	0.4
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	9.9
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	0.0
Collection Lines				
Boyle-Rock outcrop complex, 5 to 25 percent slopes	124	0.23	5	3.8
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	72.0
Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes	227	0.24	6	5.8
Rock outcrop-Rogert complex, 25 to 99 percent slopes	215	0.24	8	14.1
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	90.4
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	243	0.27	3	10.5
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	130	0.27	3	1.2
Dalecreek-Kovich complex, 0 to 9 percent slopes	149	0.28	3	3.4
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	12.3
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	72.1

Soil Map Unit Name	Soil Map Unit Symbol	K-Factor	Wind Erodibility Group	Acres
Canburn loam, 1 to 4 percent slopes	132	0.29	4L	1.6
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	27.0
Rock outcrop-Cathedral complex, 20 to 40 percent slopes	212	0.36	N/A	2.2
Crane Paths				
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	2.5
Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes	227	0.24	6	3.1
Rock outcrop-Rogert complex, 25 to 99 percent slopes	215	0.24	8	3.3
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	56.2
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	243	0.27	3	4.1
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	130	0.27	3	0.5
Dalecreek-Kovich complex, 0 to 9 percent slopes	149	0.28	3	3.0
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	3.2
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	43.2
Canburn loam, 1 to 4 percent slopes	132	0.29	4L	0.6
Rogert-Lakehelen-Rock outcrop complex, 8 to 40 percent slopes	219	0.3	5	0.3
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	6.8
Interconnections				
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	7.4
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	2.2
Laydown Yards				
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	15.3
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	14.7
Met Access Roads				
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	3.3
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	2.7
Met Towers				
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	1.8
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	0.9
O&M Sites				
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	243	0.27	3	7.0
Substations				
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	7.1
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	7.1
Transmission Lines				
Boyle-Rock outcrop complex, 5 to 25 percent slopes	124	0.23	5	2.0
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	10.2
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	20.6
Dalecreek-Kovich complex, 0 to 9 percent slopes	149	0.28	3	0.9
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	16.2
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	2.0
Turbines				
Boyle-Rock outcrop complex, 5 to 25 percent slopes	124	0.23	5	3.8
Boyle-Lininger association, 1 to 15 percent slopes	125	0.24	5	51.0
Silas, gravelly substratum-Vensora loams, 0 to 6 percent slopes	227	0.24	6	1.2
Rock outcrop-Rogert complex, 25 to 99 percent slopes	215	0.24	8	21.8

Soil Map Unit Name	Soil Map Unit Symbol	K-Factor	Wind Erodibility Group	Acres
Hapjack-Rogert-Amesmont complex, 3 to 25 percent slopes	172	0.25	5	89.2
Wycolo-Tieside sandy loams, 3 to 10 percent slopes	243	0.27	3	11.7
Byrnie-Rock outcrop complex, 10 to 50 percent slopes	130	0.27	3	0.1
Wycolo-Alcova complex, 3 to 10 percent slopes	241	0.29	3	20.4
Rogert-Rock outcrop-Amesmont complex, 5 to 25 percent slopes	220	0.29	5	74.1
Canburn loam, 1 to 4 percent slopes	132	0.29	4L	0.0
Tieside-Pilotpeak-Rock outcrop complex, 3 to 10 percent slopes	234	0.34	3	20.7
Rock outcrop-Cathedral complex, 20 to 40 percent slopes	212	0.36	N/A	4.7
Disturbance in low to moderately erodible soils				379.0
Disturbance in moderately erodible soils				1,091.8
Total disturbance				1,470.8

Note: N/A = not available.

Issue Statement #4: Would construction of the Project cause severe erosion? Could erosion damage Project facilities?

Design features, EPMs (see table 2-6), geotechnical engineering, and a SWPPP (section 3.15.1.2, “State Regulations”), would reduce potential impacts to soil resources and Project facilities. Geotechnical engineering would identify areas with highly erodible soils and steep slopes; ground disturbance in these areas would be avoided (GEO-2), preventing severe erosion. Additionally, Project facilities and infrastructure would be built to Federal- and State-required standards and industry BMPs, thereby minimizing potential impacts to soil resources and erosion damage to Project facilities. Geotechnical engineering would also identify surface and subsurface conditions that would be unsuitable to support placement of turbine foundations or other infrastructure, including linear features such as roads and electrical transmission; these areas would be avoided.

Most of the Project infrastructure occurs on slopes ranging from 4 to 17 percent, including 95 percent of proposed roads, 94 percent of collection lines, and 98 percent of turbine pads (Tetra Tech 2021b). Soil erosion hazard ratings from off-road travel within the Project Area range from slight to moderate, with the majority of the Project Area rated as slight (Tetra Tech 2021b). Soils with a moderate (or greater) hazard rating are at risk of soil loss or erosion because of historical and proposed land use activities. No soils rated as severe or very severe hazard occur in the Project Area. Soil erosion hazard ratings from on-road travel within the Project Area are predominantly moderate (Tetra Tech 2021b). Risk of erosion in this area is moderate or less. Additionally, an Erosion Control Plan would be developed to identify areas of potentially higher erodibility, disturbance would be minimized in these steep or unstable areas and within highly erodible soils (GEO-2), and appropriate erosion control measures would be implemented during and after construction, thereby minimizing severe erosion from construction of the Project (GEO-5).

Issue Statement #5: Would construction of the Project cause the loss of unique or productive soils?

Potential impacts to soil resources within the analysis area would be associated with removal and/or loss of topsoil, wind and water erosion, and soil compaction. Impacts would be more likely in unsuitable, highly erodible, and/or sensitive soils. No unique farmland soils are found within the analysis area. Approximately 4 percent of the soils in the analysis area are considered prime farmland or farmland of statewide importance. The overall permanent footprint of the Project associated with the siting corridor would impact approximately 34 acres (0.5 percent) of prime farmland soils and approximately 130 acres (2 percent) of farmland of statewide importance, none of which is currently being used for agriculture.

Design features, EPMs (section 2.2.6, “Environmental Protection Measures”), geotechnical engineering, and a SWPPP (section 3.15.1.2, “State Regulations”) would reduce potential impacts to unique or productive soil resources. Additionally, Project facilities and infrastructure would be built to Federal and State required standards and industry BMPs, thereby minimizing potential impacts to soil resources.

3.7.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance would occur from the Project and the existing conditions and trends for the resource would continue.

3.7.6 Geology, Soil, and Mineral Resources Conclusion

The Project would not restrict access for mineral development as the likelihood of development is low and access would still be available for much of the Project Area. The Project is in areas with soils appropriate for construction and the Project would be designed and constructed so as not to increase the likelihood of geologic hazards or soil erosion. The impacts to unique or productive soils would be limited—approximately 164 acres of the prime farmland or farmland of statewide important soils would be permanently converted by the Project, which equates to approximately 2.5 percent of these soil types present within the siting corridor. Based on the analyses of these issues, no significant impacts would be anticipated to these resources.

3.8 Land Use

This section describes land cover and existing land uses, including agricultural resources, and analyzes potential impacts to land use from construction, O&M, and decommissioning of the Project. For this analysis, land use is described in terms of landownership, management of lands, and land use authorizations. Agricultural resources are described in terms of agricultural conservation easements, farmland and rangeland, and prime and unique agricultural lands.

3.8.1 Regulatory Background

The following Federal, State, and local regulations establish requirements, standards, and guidelines for the management of land uses and agricultural resources and are applicable to the Project:

- The Federal Farmland Protection Policy Act of 1981 establishes a set of programs and policies to protect farmland from urban sprawl and governs projects that could irreversibly convert farmland to nonagricultural uses. The Act also provides a system for classifying farmland uses that includes prime farmland, unique farmland, and farmland of statewide or local importance.
- A special-use lease is required by the Wyoming State Lands Office for a ROW on State Trust Lands under the provisions of W.S. 36-5-101, et seq. Special-use leases are authorized under Chapter 5 of the Special Use Leasing of the Board of Land Commissioners Rules and Regulations promulgated under the authority of W.S. 36-2-107 and W.S. 36-5-114 through W.S. 36-5-116. Special use means any use of State land other than for grazing, agriculture, extraction of minerals, or uses authorized under easements granted pursuant to Chapter 3 of the Rules and Regulations, or hunting, fishing, and general recreational uses pursuant to Chapter 13 of the Rules and Regulations. Wind energy projects on State Trust Lands require a special-use lease.

- A Wind Energy Conversion System Use Permit is required under the Albany County wind energy siting regulations (Albany County 2021) for facilities with an aggregate generating capacity greater than 25 kilowatts. The permit requires applicants to certify that the Project would comply with all applicable State and county zoning and land use regulations, including land use plans.
- The “Albany County Comprehensive Plan” guides development throughout the county and includes a Long Range Growth Plan that identifies Priority Growth Areas (PGA) and land use objectives (Albany County 2008). Four PGAs are identified as growth and development areas: PGA 1—City of Laramie Urban Growth Area; PGA 2—Water and/or Sewer Service; PGA 3—Community Centers and other Growth-Efficient Nodes; and PGA 4—Agricultural and Natural and Environmental Resource Areas. Land use objectives identified in the plan include the following:
 - Land Use (LU) 1—Promote development patterns that are growth efficient and logically sequenced to be efficiently served by public services. Direct development to specific areas, facilitating this by phasing infrastructure and service investments.
 - LU2—Preserve open spaces, agricultural lands, and environmentally sensitive areas that are not currently suitable for development. Open space is broadly defined by Albany County (2008) as land not used for buildings or structures.
 - LU3—Fulfill needs for various kinds of housing and employment opportunities for current and future residents.
 - LU4—Provide recreational opportunities.
- The ACZR establishes a zoning system that classifies land into four categories: agricultural, residential, commercial, and industrial. Federal and State lands within Albany County are exempt from these classifications.

Additional information on the land use regulatory background applicable to the Project is included in the “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.8.2 Data Sources

Data sources used to characterize existing (i.e., baseline) conditions and analyze potential impacts to land uses from the Project include the following:

- EPA Level IV ecoregions (Chapman et al. 2004); National Land Cover Database (NLCD) (Yang et al. 2018)
- NWRs (FWS 2019c.); State wildlife management areas (WMAs) (WYGFD 2020a)
- “Albany County Comprehensive Plan” (Albany County 2008) and ACZR (Albany County 2015)
- Wyoming Stock Growers Land Trust (WSGALT) Conservation Easements (WSGALT 2019); Farm Service Agency (FSA) Conservation Reserve Program Lands (FSA 2019); Natural Resources Conservation Service (NRCS) Agricultural Conservation Easement Program lands (NRCS 2020)
- National Agricultural Statistic Service (NASS) Census of Agriculture (NASS 2017)
- Aerial photographs for characterizing agricultural resources

The analysis of land cover and land use is also based on land cover data collected as part of a field-based habitat assessment completed in 2019, which, along with additional details on the above data sources, is described in “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.8.3 Analysis Area

The Project Area was selected as the analysis area for land use to capture the extent to which potential impacts from the Project could occur. County-level (Albany County) agricultural resource information was used to characterize agricultural resources within the Project Area.

3.8.4 Baseline Description

The following summarizes existing land cover, land uses, and agricultural resources within the analysis area. Additional details on these land uses are provided in the “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.8.4.1 Land Cover

Land cover within the analysis area consists primarily of shrub/scrub vegetation (approximately 24,500 acres or 94 percent of the analysis area), with the remaining areas consisting of a variety of vegetation types such as pasture/hay and barren land. Additional information on land cover within the analysis area is provided in section 3.14, “Vegetation.”

3.8.4.2 Local Land Use

The analysis area includes both State and private lands zoned as exempt and agricultural, respectively, within unincorporated Albany County. Land use in the analysis area consists primarily of rangeland with scattered residences and residential structures throughout the analysis area that are generally associated with ranching activities.

Two parallel transmission lines owned and operated by WAPA traverse the center of the analysis area in an east-to-west direction. The UPRR Central Corridor traverses the center of the eastern portion of the analysis area and splits into two lines running northeast and southeast near the eastern boundary of the analysis area. Other easements and ROWs are present in the Project Area, including those associated with utilities, roads (as detailed in section 3.13, “Transportation and Access”), and trails (as detailed in section 3.11, “Recreation Resources”).

3.8.4.3 National Parks, Forests, Lands, and Wildlife Refuges

There are no national parks or forests, Federal lands, or wildlife refuges within the land use analysis area. As a result, these resources are not further discussed.

3.8.4.4 State Lands, Parks, Wildlife Management Areas, and Other Conservation Lands

There are approximately 4,756 acres of State Trust Land within the Project Area. State Trust Lands are shown in figure 3-10.

There are no State parks, WMAs, or other conservation lands or easements within the analysis area. As a result, these resources are not further discussed under land use.

3.8.4.5 Agricultural Resources

The analysis area is designated as Agricultural (A, 40 acres or greater; PGA 4) in the “Albany County Comprehensive Plan” (Albany County 2008). Agricultural land is defined as land for commercial farming and ranching operations. This designation allows for active production and management of livestock, production and storage of commercial and grain crops, and related functions. The town of Tie Siding, immediately north of the analysis area, is designated as an existing PGA 3 (Albany County 2008). Most of the county is categorized as agricultural, including the analysis area, as defined in the ACZR (Albany County 2015). Agricultural resources within the analysis area are shown in figure 3-10.

Agricultural Conservation Easements

Agricultural conservation easements in Wyoming include conservation easements managed by WSGALT, lands managed by FSA under the Conservation Resource Program, and conservation easements managed by the NRCS under the Agricultural Conservation Easement Program (WSGALT 2019; FSA 2019; NRCS 2020). At the time of this analysis, there are no lands within the analysis area enrolled in or managed under agricultural conservation easement programs. As a result, these resources are not further discussed.

Farmland and Ranchland

Agricultural uses within the analysis area include nonirrigated private cattle ranches and State Trust Land leased for cattle grazing. There are approximately 177 acres of irrigated farmland within the analysis area, including approximately 7 acres within the siting corridors and 170 acres outside of the siting corridors.

According to the 2017 Census of Agriculture (NASS 2017), agricultural land use within Albany County consists of 451 farms on 1.4 million acres, with an average farm size of 3,119 acres. Livestock, poultry, and other animal products, such as milk and wool, comprised the majority (88 percent) of the market value of agricultural products sold with crop sales comprising the remaining 12 percent. Predominant livestock inventory items included cattle and calves, sheep and lambs, and horses and ponies. Forage crops, including land used for hay and haylage, grass silage, and greenchop, made up most crops harvested in Albany County (76,614 acres) (NASS 2017).

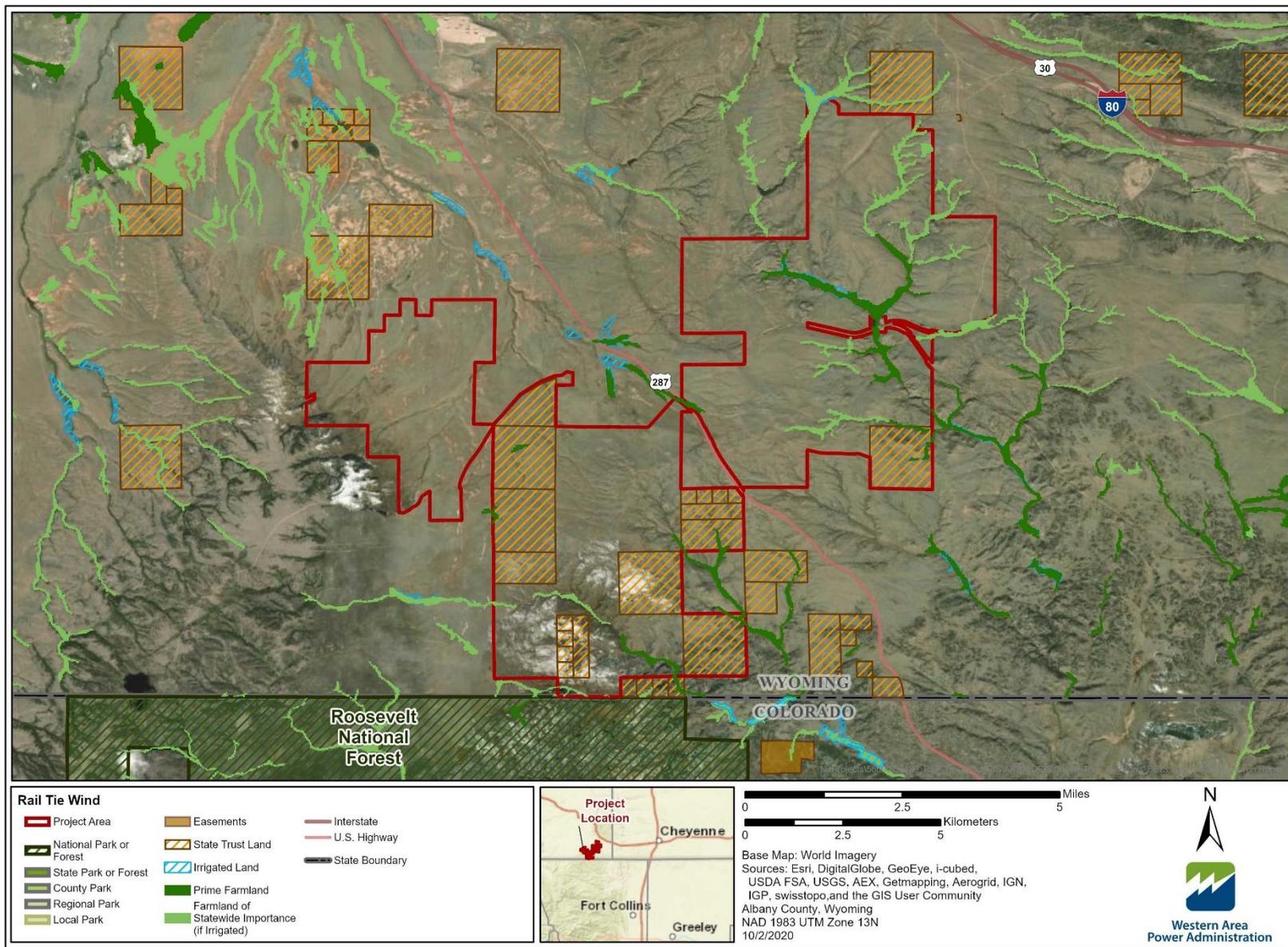


Figure 3-10. Land use in and around the Project Area.

Prime Farmland, Unique Farmland, and Farmland of Statewide Importance

Prime farmland, unique farmland, and farmland of statewide importance are defined by the U.S. Department of Agriculture and administered by the NRCS. These farmlands meet criteria related to soil health and crop productivity. Prime farmland has the most suitable combination of physical and chemical characteristics for producing food and other agricultural crops. Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops. Farmland not meeting the criteria for prime or unique farmland but still important to produce food, feed, fiber, forage, and oilseed crops is considered farmland of statewide importance. There are approximately 521 acres of prime farmland and approximately 570 acres of farmland of statewide importance (if irrigated) within the analysis area. None of the lands with these designations in the analysis area are currently under agricultural production. No unique farmland is found within the analysis area and as a result is not further discussed.

3.8.5 Impacts to Resource

This section describes the potential impacts to land use associated with construction, O&M, and decommissioning of the Project.

3.8.5.1 Impact Indicators

For the purposes of this analysis, an impact to land use could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- Conflict of the Project with applicable existing local land use plans, ordinances, zoning resolutions, comprehensive plans, regulations, or policies.
- Acquisition, disturbance of, or conflict with private lands, existing corridors, or utility ROWs.
- Disturbance, preclusion, or conversion of existing land uses.

3.8.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to land use:

- Local land use plans, ordinances, and policies were reviewed to determine if the Project conforms or conflicts with existing and planned uses.
- Uses of the Project during construction, O&M, and decommissioning were evaluated to determine if existing land uses would be restricted, precluded, or converted.

3.8.5.3 Proposed Action

Issue Statement #1: Would the Project conflict with existing zoning designations or applicable plans, policies, goals, or regulations?

The analysis area for land use includes both State and private lands. State lands within the analysis area are zoned as exempt from classifications under the ACZR. Private lands within the analysis area are categorized as agricultural under the ACZR. Per the county's zoning resolution, commercial wind energy projects are considered a permitted use within the Agriculture Zone, and the Project would, therefore, be in conformance with applicable zoning resolutions.

Agricultural lands within the analysis area are identified in the “Albany County Comprehensive Plan” as PGA 4—Agricultural and Natural and Environmental Resource Areas (Albany County 2008). Land use objectives in the “Albany County Comprehensive Plan” applicable to PGA 4 and the Project’s actions relative to these objectives are listed below:

- LU 1 emphasizes the promotion of efficient, sequenced, and phased development. The Project has been designed to be efficient, using phased development and decommissioning as appropriate (section 2.3, “Summary of Impacts”). The Project Proponent would plan, coordinate, and conduct each Project stage in a manner that is efficient and protects the quality of the environment. As a result, the Project would conform to this land use objective.
- LU 2 is aimed at preserving open spaces, agricultural lands, and environmentally sensitive areas. The Project has been designed to limit ground disturbance to the minimum amount necessary to accommodate Project facilities (see table 2-6; GEO-1). As described for LU 1, the planning, coordination, and execution of the Project would be completed in a manner that protects the quality of the environment. The Project would delineate environmentally sensitive areas and implement practices necessary to avoid or minimize impacts to these areas (GEN-2). Although the Project would preserve existing land uses to the extent practicable, it would not altogether avoid ground disturbance in open spaces or agricultural lands. As a result, the Project would not conform to this land use objective.
- LU 3 is aimed at fulfilling housing and employment opportunities for current and future residents. The intent of the Project is not to fulfill housing demands; however, the Project was designed to limit ground disturbance and, therefore, the need to displace existing residences. There are four residences within the Project Area. The Project has been designed to avoid these properties to the extent practicable and would not require the acquisition of these residences. The Project would provide approximately 200 to 300 construction jobs and approximately 20 O&M jobs, many of which would be available to the local population. As a result, the Project would conform to this land use objective.
- LU 4 emphasizes providing recreational opportunities. Limiting ground disturbance to accommodate the Project would reduce the need for restrictions or closures to recreation areas, to the extent practicable, and there would be no permanent restrictions to or closures of recreation areas that would affect recreational opportunities (section 3.11, “Recreation Resources”). Because of this, the Project would support the continuation of recreation opportunities and would be in conformance with this objective.

The Project would be constructed and operated in compliance with applicable zoning and siting designations and Federal, State, and county environmental regulations (GEN-1), which would include compliance with any applicable habitat conservation plans or natural community conservation plans. As described above, the Project would not conform with “Albany County Comprehensive Plan” land use objective LU 2 because it would not avoid ground disturbance in open spaces or agricultural lands. The “Albany County Comprehensive Plan” was developed to be used as a guide for other actions and regulations (Albany County 2008) and would not be considered for regulatory decisions concerning the development of a wind project in the county. Since the adoption of the “Albany County Comprehensive” Plan, other regulations, including the ACZR, which under Section 12 includes regulations specific to wind energy siting in Albany County (Albany County 2015), supersedes the “Albany County Comprehensive Plan,” and the Project has been designed to be consistent with the ACZR. Therefore, the Project’s nonconformance with the “Albany County Comprehensive Plan” would not represent a conflict. As a result, the Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans.

Issue Statement #2: Would the Project disturb, preclude, or convert existing land uses?

The Project Area encompasses approximately 26,000 acres of ranchland, including four residences associated with ranching activities, on private and Wyoming State Lands. There are several ROWs in the Project Area associated with the two parallel transmission lines, owned and operated by WAPA, that traverse the center of the analysis area. The UPRR rail line traverses the center of the eastern portion of the analysis area. Other easements and ROWs are present throughout the Project Area, including utility lines, roads, and trails.

Construction and maintenance traffic associated with the Project would be limited to minimize disruptions to existing land uses (Recreation [REC]-3). Activities during construction, such as heavy equipment use, could disturb ranching or residential activities because of noise; however, these disturbances would end after the conclusion of construction and would not preclude or convert existing land uses. Construction would require the use of temporary laydown yards that together would encompass approximately 30 acres. Land use in the laydown yards would be precluded during construction but would be restored following the conclusion of construction.

The Project would include infrastructure throughout the operational life of the Project consisting of an interconnection switchyard with fencing (8 acres); turbines (9.7 acres); electrical substations with fencing (10 acres); an O&M facility with fencing (5 acres); transmission lines (10.6 acres), and access roads (140.7 acres). In total, the operational footprint of the Project would encompass approximately 184.1 acres of the Project Area.

The Project would preserve existing land uses to the extent possible. As described under Issue Statement #1, the Project would be compliant with applicable zoning, siting, and Federal, State, and county environmental regulations (GEN-1). The Project has been designed to limit ground disturbance to the minimum amount necessary to accommodate Project facilities (GEO-1), and execution of the Project would be completed in a manner that protects the quality of the environment. Practices would be implemented as necessary to avoid or minimize impacts to existing land uses, including environmentally sensitive areas (GEN-2). In general, access roads would be located within the turbine siting corridors to the extent possible and/or along existing two-track dirt roads. Collection lines would be buried and collocated with access roads to the extent possible (VIS-1). The use of ranchlands or private lands would be coordinated with landowners and implemented through lease agreements. Existing structures owned by private landowners, including existing drainage and erosion control structures, would be avoided by the Project, or if disturbed during construction, would be repaired to as close to the original condition as soon as possible (GEO-8). As described under Issue Statement #1 and section 3.11, "Recreation Resources," there would be no permanent restrictions to or closures of recreation areas. Because of this, restrictions to and changes to land uses in the analysis area would be limited to the operational footprint of facilities (approximately 184.1 acres), which would encompass less than approximately 0.7 percent of the overall analysis area. Land uses would be reestablished during decommissioning, and as a result, there would be no permanent conversions of land uses.

Approximately 4.2 percent of the analysis area encompasses prime farmland (approximately 521 acres, or 2 percent) and farmland of statewide importance (if irrigated; approximately 570 acres, or 2.2 percent) within the analysis area; however, none of the lands with these designations in the analysis area are currently under agricultural production. The overall footprint of operational facilities would encompass approximately 184.1 acres including approximately 0.3 acres (0.2 percent) of prime farmland and approximately 1.7 acres (0.9 percent) of farmland of statewide importance (if irrigated); potential conversions of farmlands would be limited. Because the Project could irreversibly convert farmland to nonagricultural use, the Project would be subject to NRCS review to evaluate Farmland Protection Policy Act requirements and identify any additional minimization measures to reduce impacts to prime farmland and farmland of statewide importance.

3.8.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.

3.8.6 Land Use Conclusion

The Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans. Existing land uses would be preserved to the extent possible. Land uses would be reestablished during decommissioning of the Project. The 0.3 acres of prime farmland and 1.7 acres of farmland of statewide importance (if irrigated) that would be converted to Project disturbance during O&M would be reclaimed as part of Project decommissioning. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

3.9 Paleontological Resources

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth (16 United States Code 470aaa (4)). Paleontological resources are afforded protection under Federal and State laws, ordinances, and regulations. These resources include the rocks in which fossils are preserved because the geologic character of the rock record preserves the ecological, geographic, and evolutionary context of past life represented by fossils themselves. Scientific importance could be attributed to the actual fossil specimen, to fossil context (e.g., location in time and space or intimate association with other evidence of scientific importance), or to fossil preservation.

3.9.1 Regulatory Background

W.S. 34-1-157, which pertains to fossil ownership, states that all fossils, artifacts, or non-fossil animal remains (not including coal, oil, gas, or other hydrocarbons) discovered at the surface or in the subsurface belong to the surface estate. Fossils are not considered minerals. W.S. 34-1-157 also defines fossils as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. The Wyoming Antiquities Act of 1935 (W.S. 36-1-114 through 36-1-116) protects archaeological and paleontological deposits on State lands. Any excavation of paleontological deposits in the State of Wyoming on any State lands requires authorization to be obtained from the State Board of Land Commissioners.

3.9.2 Data Sources

The information presented in this section comes primarily from the "Paleontological Resources Assessment Technical Report" prepared by PaleoWest (2020) for the Project. That report compiled publicly available geologic mapping and scientific literature, as well as a records search from the University of Wyoming Department of Geology and Geophysics and BLM Potential Fossil Yield Classification (PFYC) rankings for the geologic units within the Project Area.

3.9.3 Analysis Area

The analysis area for paleontological resources includes the Project siting corridors and a 0.5-mile buffer. Because paleontological resources could be encountered throughout a geologic unit, the analysis extends to geologic units that could be impacted by Project activities, whether at the surface or in the subsurface.

3.9.4 Baseline Description

A summary of the existing geologic units present in the analysis area is included in section 3.7.4.2, “Geologic Units within the Project Area.” The assessment of impacts to paleontological resources from the construction and operations of the Project follows two primary steps: (1) determining the geologic units present in the Project Area that are likely to be impacted by Project activities, and (2) assessing the potential of those geologic units to preserve important paleontological resources.

3.9.4.1 *Paleontological Sensitivity of the Geologic Units*

The BLM has developed a system of classification for the potential of geologic units to preserve fossil resources and associated management recommendations (BLM 2016). The State of Wyoming has applied these rankings to the geologic units mapped in the analysis area (figure 3-11). These rankings are explained in table 3-23.

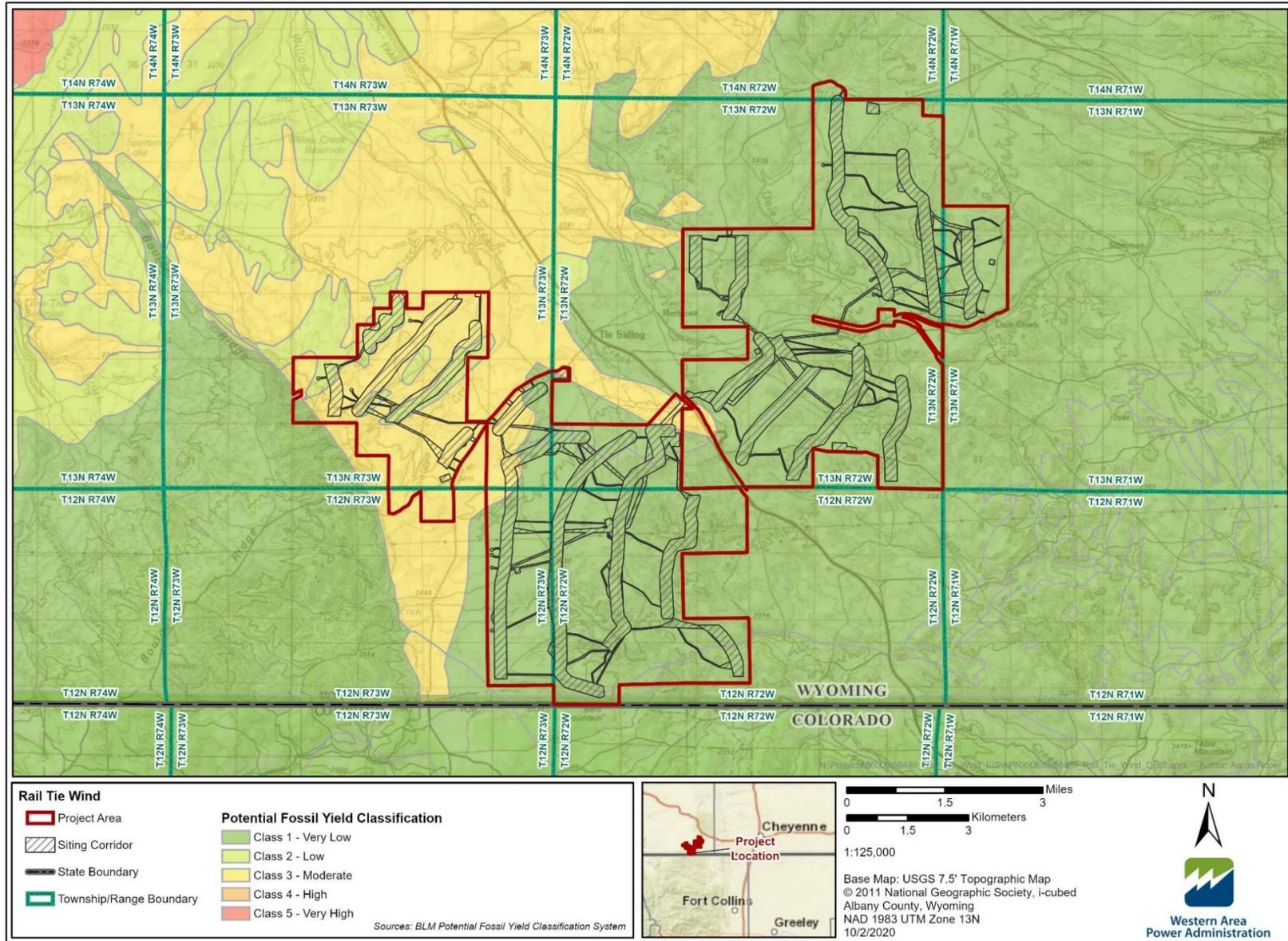


Figure 3-11. Potential Fossil Yield Classification rankings in the Project Area.

Table 3-23. Paleontological Sensitivity of the Geologic Units within the Project Area

Geologic Unit	Age	BLM PFYC Ranking	PFYC Explanation	Occurrence in Project Area
Younger alluvium	Holocene (0–11,700 years old)	2, low	Younger alluvium is generally too young to preserve fossil resources (fossils are considered by the BLM (2016) as being Pleistocene or older in age).	Scattered throughout, found at the surface.
Older alluvium	Pleistocene (11,700 years old–2.58 Ma)	2, low	The lithology in the Project Area is indicative of a high-energy depositional environment, which is usually not conducive to the preservation of fossils.	Scattered across western portion, found at the surface.
Casper and Fountain Formations, undivided	Pennsylvanian – Permian (323–251 Ma)	3, moderate	These units, particularly the Casper Formation, have been documented to be locally fossiliferous and could preserve a variety of common invertebrate fossils.	Western portion, found at the surface and likely in the subsurface underlying alluvial sediments.
Igneous and metasedimentary rocks	Middle-early Proterozoic (over 1,400 Ma)	1, very low	Formation conditions (magma cooling or extreme temperatures and/or pressures) precludes fossil preservation (it should be noted that PFYC 1 is the lowest ranking on the BLM’s scale).	Eastern and central portion.

Source: PaleoWest (2020).

3.9.5 Impacts to Resource

This section describes the potential impacts to paleontological resources associated with construction, O&M, and decommissioning of the Project.

3.9.5.1 Impact Indicators

For the purposes of this analysis, an impact to paleontological resources could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- Disturbance of surficial geologic units with moderate, high, and very high potential to contain paleontological resources (e.g., BLM’s PFYC 3, 4, and 5).
- Disturbance of previously recorded localities.
- The outcomes of these disturbances can be either positive or negative. Positive impacts to paleontological resources could result from the discovery, salvage, and curation of fossil resources that would otherwise have remained unknown to science. Negative impacts to paleontological resources could result from the uncovering of fossil resources that were then damaged or destroyed and thus lost to science.

3.9.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to paleontological resources:

- SWCA used PaleoWest’s “Paleontological Resources Assessment Technical Report” analysis of the paleontological sensitivity of the Project Area, as compared to the mapped siting corridors in the Project Area, to identify where ground disturbance associated with the Project intersects with paleontologically sensitive geologic units.

3.9.5.3 Proposed Action

Issue Statement #1: How would construction related to ground-disturbing activities affect known or unknown paleontological resources?

Ground-disturbing activities have the potential to uncover fossil resources. Any ground disturbance, including anticipated activities such as foundation excavation, road construction, and excavations for underground collection lines, could encounter fossil resources when these activities occur in areas of moderate paleontological sensitivity. In the analysis area, that includes the Casper and Fountain formations. Within the Project Area, 851 acres within the siting corridors are mapped as belonging to the Casper or Fountain formations at the surface. This value only represents the surficial, mapped exposure of the Casper and Fountain formations and does not include the subsurficial extent of these units, which could also be present underlying the alluvial sediments in the Project Area. Given the depth of disturbance of up to 40 feet anticipated for some Project components, it is likely that these excavations in alluvium could exceed the depth of the alluvium and enter underlying geologic units, such as the Casper or Fountain formations.

The outcomes of encountering paleontological resources can be either positive or negative. Positive impacts to paleontological resources could result from the discovery, salvage, and curation of fossil resources that would otherwise have remained unknown to science. Negative impacts to paleontological resources could result from the uncovering of fossil resources that were then damaged or destroyed and thus lost to science.

To minimize negative impacts to paleontological resources, a preconstruction survey would be conducted for any areas mapped as the Casper or Fountain formations where ground disturbance is planned (Paleontological Resources [PALEO]-1). An Unanticipated Discoveries and Mitigation Plan would be developed prior to the onset of construction to specify the appropriate means of identifying, protecting, and mitigating any unanticipated fossil discoveries across the Project Area during construction (PALEO-2). This plan would be developed by a qualified paleontologist and address specific locations and depths of ground disturbance in relation to the variable paleontological sensitivity of the Project Area. Construction crew members would also receive training in the identification of fossil resources and proper steps to follow in the event of their discovery (PALEO-3). Should fossils be encountered during construction, work would halt in the vicinity of the find until a paleontologist can assess the significance of the finds and determine the appropriate steps to take (PALEO-4). With the implementation of these EPMs, impacts to fossil resources would be mitigated.

Issue Statement #2: How would an increase in human activity during and after construction affect known and unknown paleontological resources?

Negative impacts to paleontological resources could result from the illegal collection of fossil resources encountered during Project construction, O&M, or decommissioning. The Unanticipated Discoveries and Mitigation Plan developed before the onset of construction would outline the specific actions for identifying, protecting, and mitigating any unanticipated fossil discoveries across the Project Area during and after construction (PALEO-2).

Operations and Maintenance

Impacts to paleontological resources during O&M for the Project could result from any additional ground disturbance that is necessary, if that disturbance is into previously undisturbed paleontologically sensitive sediments. Before the start of construction, an Unanticipated Discoveries and Mitigation Plan would be developed to describe the appropriate means of identifying, protecting, and mitigating any unanticipated fossil discoveries across the Project Area during additional ground disturbance during O&M (PALEO-2).

Decommissioning

Impacts to paleontological resources from decommissioning of the Project are likely to be minimal because ground disturbance is anticipated to be in areas with existing infrastructures that were previously disturbed during the construction of the Project. Additional impacts to paleontological resources would only be expected should ground disturbance occur in previously undisturbed areas.

3.9.5.4 *No Action Alternative*

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue. Therefore, there would be no impacts to paleontological resources.

3.9.6 Paleontological Resources Conclusion

Impacts to paleontological resources would result from the discovery of fossils during construction activities. The Project includes appropriate measures for minimizing negative impacts to important paleontological resources (PALEO-1 through PALEO-4). Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

3.10 Public Health and Safety

This section describes emergency service providers and existing health and safety risks and analyzes potential impacts to public and worker health and safety from construction, O&M, and decommissioning of the Project.

3.10.1 Regulatory Background

The following Federal, State, and local regulations establish requirements, standards, and guidelines related to public and worker health and safety and are applicable to the Project:

- Regulations aimed at minimizing workplace dangers have been established under the Occupational Safety and Health (OSHA) Act of 1970, as amended. These include general industry standards (29 CFR 1910) and construction industry standards (29 CFR 1926).
- In accordance with Section 18 of the OSHA Act of 1970, as amended, the State of Wyoming has developed an occupational safety and health program with mandatory requirements to minimize risks to workers.
- An Electrical Wiring Permit is required by the Wyoming Department of Fire Prevention and Electrical Safety for all electrical features of a facility not regulated by Wyoming Public Service Commission (W.S. 35-9-120 and 90-2 of the International Electric Code). The person or contractor installing the electrical wiring is responsible for obtaining the wiring permit. An electrical utility may not energize the electrical service until a wiring permit has been obtained.
- A Rural Address Permit is required by the Albany County Planning Department that includes assignment of a rural address for all new developments so that in the event of an emergency, personnel can efficiently find the site. The Rural Address Permit is received after the Zoning Certificate is issued.

- The “Albany County Hazard Mitigation Plan” outlines guidance and requirements for responding to natural disasters and hazardous materials spills (Albany County Emergency Management Agency and Carbon County Emergency Management Agency 2019). The Albany County Emergency Management Office is responsible for implementing the plan, which is coordinated by the Laramie Fire Department.
- The Albany County wind energy siting regulations (Albany County 2015) limit noise from commercial wind energy facilities to 55 A-weighted decibels (dBA) as measured at a point along the common property lines between a nonparticipating property and a participating property. This limit includes the following conditions:
 - a. This level may be exceeded during short-term events such as utility outages, severe weather events, and construction or maintenance operations.
 - b. This standard shall not apply along any portion of the common property line where the participating property abuts Federal or State property.
 - c. Noise levels may exceed the 55 dBA limit along common property lines if written permission, as recorded with the Albany County Clerk, is granted by the affected adjacent nonparticipating property owners.

Additional information on the health and safety regulatory background applicable to the Project is included in the “Rail Tie Wind Project Health and Safety Technical Report” (Tetra Tech 2020j).

3.10.2 Data Sources

Data sources used to characterize existing (i.e., baseline) conditions and analyze potential impacts to health and safety from the Project include the following:

- Publicly available information contained on websites, databases, maps, and scientific literature to identify
 - fire, police, and other emergency service providers, including locations, staffing, and service areas (Albany County Emergency Management Agency and Carbon County Emergency Management Agency 2019; Albany County Fire District #1 2020; American Hospital Directory 2020; Federal Bureau of Investigation [FBI] 2018a, 2018b; Ivinson Memorial Hospital 2020; Laramie Wyoming 2020a, 2020b; Rawlins Interagency Dispatch Center 2020);
 - emergency response equipment (Laramie Wyoming 2020b);
 - locations of schools and hospitals (Ivinson Memorial Hospital 2020);
 - county landownership, zoning (Albany County 2015);
 - locations of sewer, water, and solid waste facilities;
 - Albany County setback requirements (Albany County 2015);
 - occupational illness/injury rates (U.S. Bureau of Labor Statistics [BLS] 2018a); and
 - national and state (Wyoming) crime rates (FBI 2018c, 2019; Uniform Crime Reporting Statistics 2020; U.S. News 2020a).
- Digitized aerial imagery
- Previous studies of existing ambient noise (WAPA 2012)
- Information provided by the turbine manufacturer related to noise, potential ice throw from turbine blades and electric and magnetic fields (EMF)

3.10.3 Analysis Area

The following analysis areas have been identified to evaluate the extent to which potential impacts from the Project could occur on public and worker health and safety:

- Accidents or injuries: The analysis area for evaluating accidents and injuries is the Project Area, which captures the extent to which Project activities or infrastructure could lead to public or worker safety risks during construction, O&M, and decommissioning.
- Fires: The analysis area for evaluating fire hazards is the Project Area and a 1-mile buffer around the Project Area to capture the extent to which accidental or incidental fires could occur during construction, O&M, and decommissioning and lead to public or worker safety risks. This analysis area also captures the extent to which risks of damage to Project facilities could occur from wildfires.
- Emergency services: The analysis area for evaluating changes to emergency services is the Project Area plus Wyoming emergency service provider response areas that overlap the Project Area to capture the extent to which demands to, or capacities of, emergency service providers could be affected as a result of construction, O&M, and decommissioning of the Project.
- Criminal activities: The analysis area for evaluating hazards related to criminal activities is the Project Area, which captures the extent to which criminal or illegal activities could occur and lead to safety risks associated with Project facilities to those parties, the public, or workers.
- Noise and vibration: The analysis area for evaluating noise and vibration is a 2-mile buffer in all directions from siting corridors.
- EMF and corona: The analysis area for evaluating EMF and corona is the Project Area and a 1-mile buffer around the Project Area to capture the extent to which the public or workers could be exposed to EMF or corona and associated health and safety risks.

3.10.4 Baseline Description

As described in section 3.8, “Land Use,” the analysis area is made up of private- and State-owned lands. Access to private land is restricted by landowners, although State land is accessible to the public if accessible from public roads. The analysis area is rural and consists of open scrub/shrub and grassland/herbaceous rangeland. Within the Project Area, there are four residences, all of which are owned by participating landowners. There are 57 residences within 1 mile of the Project Area.

The following summarizes existing emergency service providers with service to the analysis area, worker injury and illness rates, criminal statistics, and existing sources of EMF and corona, in addition to a summary of other safety considerations. Additional details on these resources and topics are provided in the “Rail Tie Wind Project Health and Safety Technical Report” (Tetra Tech 2020j).

Within the analysis area, primary sources of noise include U.S. 287 and the Union Pacific railroad. A survey of the ambient sound (i.e., the all-encompassing sound in a particular environment or community) of the western portion of the Project Area was conducted in November 2010 and June 2011 (WAPA 2012). The study presented equivalent sound levels (L_{eq}) based on a 24-hour period and showed that the existing ambient noise levels ranged from 45 dBA L_{eq} to 53 dBA L_{eq} (WAPA 2012).

3.10.4.1 Emergency Service Providers

Emergency service providers that service the analysis area are shown in figure 3-12 include the following:

- The Albany County Sheriff's Office has 45 sworn law enforcement officers (FBI 2019) and provides law enforcement services to Albany County. The Laramie Police Department has 45 sworn law enforcement officers (FBI 2019) and services the city of Laramie.
- The Tie Siding Volunteer Fire Department is located approximately 3.2 miles from the Project Area in Albany County Fire District #1 (ACFD #1). This fire department responds to a 220-square-mile service area with a population of approximately 400. The department operates one fire station staffed by 11 unpaid volunteer firefighters and works cooperatively with other volunteer fire departments throughout Albany County.
- The Vedauwoo Volunteer Fire Department is located approximately 1.9 miles from the Project Area in ACFD #1. This fire department serves a population of approximately 500 and operates one fire station staffed by seven unpaid volunteer firefighters. The department works cooperatively with other volunteer fire departments throughout Albany County.
- The Laramie Fire Department services the city of Laramie and, through a mutual aid agreement with the ACFD #1, services southern Albany County. This fire department serves a population of approximately 32,000 people and operates three fire stations staffed by 48 full-time firefighters. The Laramie Fire Department provides emergency medical services for Albany County (Laramie Wyoming 2020b). The Laramie Fire Department also responds to natural disasters and hazardous material incidents within Albany County and maintains specialized response trailers that carry most necessary equipment for a hazardous material incident (Laramie Wyoming 2020b).
- The Ivinson Memorial Hospital in Laramie is the closest hospital to the Project Area, located approximately 17.6 miles from the Project Area. The hospital is a State-Certified Area Trauma Level III Hospital and has 24-hour in-house physicians covering medical, surgical, and extended care units (Ivinson Memorial Hospital 2020). Ivinson Memorial Hospital has 506 total employees and 99 licensed hospital beds (American Hospital Directory 2020; Ivinson Memorial Hospital 2020).
- The Rawlins Interagency Dispatch Center, a division of the BLM's High Desert District, dispatches wildfire services to six counties in southern Wyoming, including Albany County, on behalf of the counties, and provides fire response services to four BLM field offices, the State of Wyoming, Wyoming State Forestry Division, the NPS, and the FWS (Rawlins Interagency Dispatch Center 2020).
- The Wyoming State Forestry Division is responsible for fire suppression on Wyoming State land. The Wyoming State Forestry Division, Casper Interagency Dispatch Center in Casper, Wyoming, provides fire response services to Albany County and would, therefore, service the Project Area (Wyoming State Forestry Division 2019).

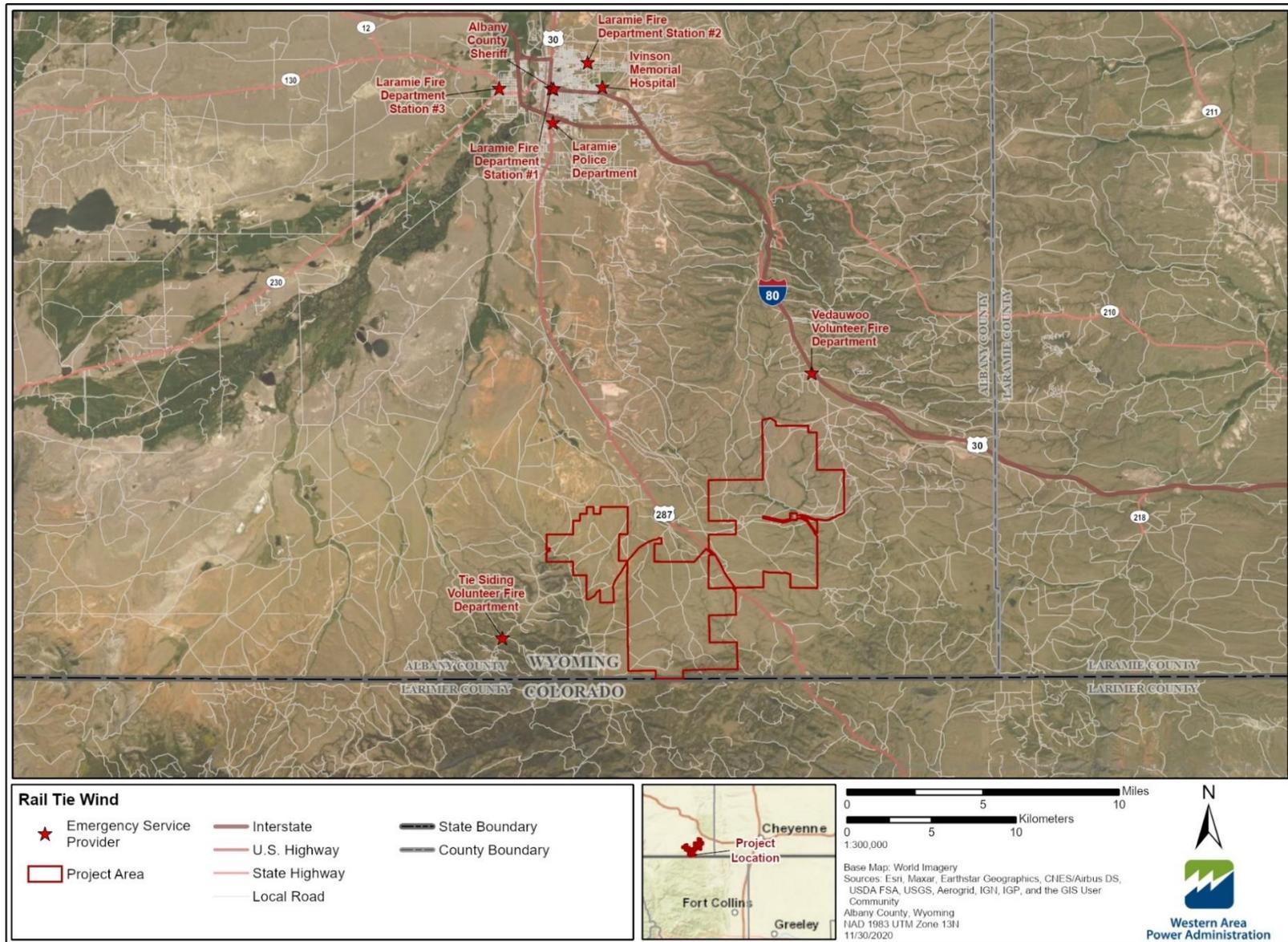


Figure 3-12. Emergency service providers.

3.10.4.2 Worker Injury and Illness Rates

Table 3-24 summarizes average national occupational injury and illness rates for construction workers, the electric power generation, transmission, and distribution industry, and all other industries in 2018. Occupational injury and illness rates specific to wind energy generation are not available; however, data are available for the larger electric power generation, transmission, and distribution industry (BLS 2018a). Construction worker injuries and illnesses account for approximately 6 percent of injuries and illnesses for all industries. The total recordable case rate for construction workers (2.8) is similar although slightly higher than that for all industries (2.4). Injury and illness rates for the power industry are better than the average rates of all industries for 2018 (BLS 2018a).

Table 3-24. National Occupational Injury and Illness Rates in 2018

Industry	2018 Average Annual Employment ¹ (thousands)	Total Recordable Cases (thousands)	Total Recordable Case Rate	Lost Workday Cases ² (thousands)	Lost Workday Case Rate
Construction	7,225.9	199.1	2.8	77.5	1.1
Electric power generation, transmission, and distribution	390.8	6.8	1.7	3.7	1.0
All industries	146,131.8	3,544.4	2.4	1,915.2	1.3

Source: BLS (2018a, 2018b).

¹ Employment is expressed as an average and is derived primarily from the BLS-Quarterly Census of Employment and Wages program.

² Days-away-from-work cases include those that result in days away from work with or without job transfer or restriction.

3.10.4.3 Wildfire

Wildfire hazard potential in and around the Project Area is categorized as very low to moderate, although there are some scattered areas where wildfire hazard potential is high to very high. See section 3.16, “Wildland Fire,” for a detailed analysis of wildland fire impacts.

3.10.4.4 Criminal Statistics

The Laramie City Police Department reported 705 cases of property crime and 48 cases of violent crime in 2014, with a property crime rate of approximately 2,200 per 100,000 people and a violent crime rate of approximately 150 per 100,000 people (Uniform Crime Reporting Statistics 2020). In 2017, Wyoming was ranked ninth nationally for public safety based on a ranking of 14th for low property crime rate and 10th for low violent crime rate (FBI 2018c, 2019; U.S. News 2020a, 2020b). The 2017 national average of property crime was 2,362.2 offenses per 100,000 inhabitants, and violent crime was 394 offenses per 100,000 inhabitants (FBI 2018c, 2019). In 2017, the rates of property crime and violent crime in Wyoming were 1,830.4 per 100,000 inhabitants and 237.5 per 100,000 inhabitants, respectively.

3.10.4.5 Electric and Magnetic Fields and Corona

EMFs are invisible fields of energy associated with the use of electrical power and various forms of natural and human-made lighting (National Institute of Environmental Health Sciences [NIEHS] 2020). All electric devices produce EMFs, which are categorized by their frequency as either nonionizing, which includes low-level radiation generally perceived as harmless to humans (e.g., radios and televisions), or ionizing, which includes high-level radiation with the potential for cellular and deoxyribonucleic acid (DNA) damage (e.g., sunlight, X-rays, etc.). EMFs present within the analysis area include the existing 345-kV and 230-kV transmission lines and electric distribution lines. Transmission and distribution lines

operate at low frequencies, compared to other common household electric devices such as radios, televisions, cell phones, and microwaves (American Cancer Society 2020).

Alternating current voltage on any wire that acts as a conductor produces an electric field, the intensity of which is proportional to the voltage of the transmission line. The flow of electrical current on a wire produces a magnetic field, the intensity of which is proportional to the current flow through the conductors. As a result, the strength of EMFs decreases dramatically with increasing distance from the source. EMFs from transmission lines would be similar to typical background levels at a distance of 300 feet (NIEHS 2002). In addition, electric fields could be shielded or weakened by buildings, trees, and other objects (NIEHS 2020).

There is no Federal or Wyoming State standard for transmission line EMFs. Early research focused on EMF health risks produced weak associations between EMF field strength and childhood leukemia, and no research to date has shown evidence of a link between EMF exposure and adult cancers such as leukemia, brain cancer, and breast cancer (NIEHS 2020).

Corona is an effect caused by the electrical breakdown of air at sharp points (e.g., nicks, scrapes, or burrs) on conductors or loose suspension hardware. Corona can lead to radio or television interference, humming or buzzing sounds underneath transmission lines, and a bluish glow surrounding conductors at night under certain conditions, which can be increased through water droplets, dust particles, bugs, and loose hardware (WAPA 2012). Corona has been documented as capable of producing small amounts of ozone very near conductors; however, this concentration would be limited to a few parts per million and would not be measurable at any distance from the conductor (WAPA 2012). Existing transmission lines within the analysis area are the only existing sources capable of producing corona.

Because corona effects are largely an issue of nuisance, and workers or members of the public would not be in close proximity to sources of corona capable of producing ozone (i.e., conductors) for any length of time that could lead to health impacts, this topic is not further discussed.

3.10.4.6 Noise and Vibration

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. Although prolonged exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

Wind turbine sound consists of audible, broadband, aerodynamic sound but also consists of infrasound, which is considered inaudible. Infrasound exists everywhere and is not just generated by wind turbines. Infrasound is generated by various machines and structures (atmospheric disturbances, wind, cars, airplanes). The dominant infrasound frequency (< 20.0 hertz) from a wind turbine depends on operational conditions and the type of the turbine. When operating at rated power, the source of this 0.7- to 1.5-hertz frequency is generally considered to be the blade-tower interaction. Wind turbine infrasound levels are far lower than those experienced in other everyday activities such as traveling in a vehicle or being out in the wind.

Noise could also disrupt wildlife life-cycle activities of foraging, resting, migrating, and other patterns of behavior. Although wildlife already existing in proximity to human development could already be habituated to noise from land use and human disturbance, changes to these baseline activities could still result in wildlife disruption. Additionally, sensitivity to noise varies from species to species, making it difficult to identify how a noise source would affect all wildlife in an area.

The following sections discuss local noise regulations, how noise levels and increases in noise levels are perceived by the general human population, and causes and effects of vibration.

Perception of Noise Levels

The general human response to changes in noise levels that are similar in frequency content (such as comparing increases in continuous [L_{eq}] traffic noise levels) are summarized as follows:

- A 3-decibel (dB) change in sound level is considered to be a barely noticeable difference.
- A 5-dB change in sound level typically is noticeable.
- A 10-dB increase is considered to be a doubling in loudness.

Community sound levels are generally presented in terms of dBA. The A-weighting network measures sound in a similar fashion to how a person perceives or hears sound, thus achieving a strong correlation with how people perceive acceptable and unacceptable sound levels. Table 3-25 presents A-weighted sound levels and the general subjective responses associated with common sources of noise in the physical environment.

Table 3-25. Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	Sound Level (dBA)	Qualitative Description
Carrier deck jet operation	140	N/A
Civil defense siren (100 feet)	130	Pain threshold
Jet takeoff (200 feet)	120	Deafening
Auto horn (3 feet)	110	Maximum vocal effort
Pile driver (50 feet)		
Rock music concert environment	100	N/A
Jet takeoff (2,000 feet)		
Shout (0.5 foot)		
Ambulance siren (100 feet)	90	Annoying; hearing damage (8 hour, continuous exposure)
Newspaper press (5 feet)		
Power lawn mower (3 feet)		
Heavy truck (50 feet)		
Power mower	80	Very loud
Motorcycle (25 feet)		
Propeller plane flyover (1,000 feet)		
Pneumatic drill (50 feet)	70	Loud/intrusive (telephone use difficult)
Garbage disposal (3 feet)		
High urban environment		
Passenger car, 65 mph (25 feet)		
Living room stereo (15 feet)	60	N/A
Vacuum cleaner (3 feet)		
Air conditioning unit (20 feet)		
Human voice (3 feet)	50	Moderate/quiet
Department store environment		
Light auto traffic (50 feet)		
Residential air conditioner (50 feet)		
Private business office environment		

Noise Source at a Given Distance	Sound Level (dBA)	Qualitative Description
Living room/bedroom	40	N/A
Bird calls (distant)		
Library soft whisper (5 feet)	30	Very quiet
Quiet bedroom environment		
Broadcasting/recording studio	20	Faint
--	10	Just audible
--	0	Threshold of human audibility

Source: Adapted from Table E, "Assessing and Mitigating Noise Impacts" (New York Department of Environmental Conservation 2001) and "Handbook of Environmental Acoustics" (Cowan 1993).

Note: N/A = not available.

Definition of Noise Sensitive Receptors

Noise-sensitive receptors generally are defined as locations where people reside or where the presence of unwanted sound could adversely affect the existing land use. Typically, noise-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature and wildlife preserves, recreational areas, and parks. The nearest noise sensitive area (NSA) is located 1,880 feet from a WTG. This NSA is a participating landowner.

Existing Environment

The Project is located in the southern portion of Albany County. Ambient acoustic environment refers to the all-encompassing sound in a given environment or community. Albany County is generally considered a rural agricultural area. Existing ambient sound levels are expected to be relatively low, although sound levels would be higher near roadways such as U.S. 287 as well as near the UPRR. The existing WAPA transmission lines are also in the vicinity of the Project and could generate corona noise. Other human activity such as farming and ranching operations would seasonally contribute to sound levels in the area associated with farm animals and equipment. Background sound levels are expected to vary both spatially and temporally depending on natural sounds and proximity to area sound sources such as roadways. A main contributor to the natural sounds is the wind through the analysis area. Typically, background sound levels are quieter during the night than during the daytime, except during periods when evening and nighttime insect noise could contribute to the soundscape, predominantly in the warmer seasons.

The Project Area is windy with wind being a primary background noise source. The western portion of the Project Area is composed of lands previously analyzed for the former Hermosa West Wind Farm Project. An ambient sound survey for the Hermosa West Wind Farm Project was conducted in November 2010 and June 2011. The study presented L_{eq} noise levels based on a 24-hour period. The noise levels in the study showed that the existing ambient noise levels ranged from 45 dBA L_{eq} to 53 dBA L_{eq} (WAPA 2012).

In outdoor settings, the rate at which noise attenuates (decreases) is influenced by the distance separating noise sources and noise receptors, as well as local conditions such as traffic, topography, and weather. Generally, when noise is emitted from a point source, the noise is attenuated an average of 6 dB each time the separating distance is doubled.

Vibration

Ground-borne vibration could be induced by traffic and construction activities, such as earthmoving. The effects of ground-borne vibration could include perceptible movement of building floors, interference with vibration-sensitive instruments, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. The rumbling sounds heard are the noises radiated from the motion of the

room surfaces. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance would be well below the damage threshold for normal buildings. Ground-borne vibration is almost never annoying to people who are outdoors; without the effects associated with the shaking of a building, the rumble noise of vibrations is not perceptible. Unlike noise, human response to vibration is not dependent on existing vibration levels. Humans respond to a new source of vibration based on the frequency of such events.

If hard rock is encountered within the planned foundation area of WTGs, blasting could be required to loosen or fracture the rock. Blasting is a short-duration event compared to other rock removal methods such as using track rig drills, jack hammers, rotary percussion drills, etc. Blasting creates a sudden and intense airborne noise potential and local ground vibration. The noise from blasts could reach up to 140 dBA at the blast location, attenuating to approximately 90 dBA at a distance of 500 feet from the blast. Blasting would be limited to between sunrise and sunset if blasting is necessary during construction. Blasting plans would be required of all contracted blasting specialists, demonstrating compliance with State and local blasting regulations, including the use of properly licensed personnel and obtaining necessary permits and authorizations.

3.10.5 Impacts to Resource

This section describes potential public and worker health and safety risks associated with construction, O&M, and decommissioning of the Project. Impacts to resources that could indirectly lead to health and safety risks, such as geologic hazards (e.g., landslides and seismic activity), air quality and water quality degradation, and changes to traffic patterns, are described in those respective sections.

3.10.5.1 Impact Indicators

For the purposes of this analysis, an impact to public health and safety could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- Worker accident or injury rates above the national average.
- Project-related fire risks that would not be controlled or addressed through worker response or through fire response providers; contribution of the Project to wildfires; risks of injury from damaged Project infrastructure or facilities in the event of a wildfire.
- Increased risk of criminal activities that would result in increased safety risks to those parties, workers, or the public.
- Increased demands on emergency providers that would exceed existing capacity or materials or a degradation in emergency response times or service.
- Additional sources of EMFs or corona that would lead to a potential health or safety risk, as defined by existing literature.
- Changes in ambient noise levels (measured in dBA) that exceed allowable noise levels (in dBA) established by Federal, State, or local laws, regulations, or guidelines.
- Noticeable vibration levels at nearby NSAs.

3.10.5.2 *Methods of Analysis*

The following steps were completed to analyze potential impacts to public and worker health and safety:

- Project activities, equipment, materials, and site conditions were qualitatively analyzed to determine any potential risk to the public or workers of accident or injury due to use or exposure. Anticipated worker accident and injury rates from the Project were quantitatively compared to national averages with the consideration of safety standards and regulations to protect worker health and safety.
- Project activities, equipment, materials, and infrastructure were qualitatively evaluated to determine potential fire risks and available on-site and off-site fire response resources. The nearest residents and other populated or industrial areas to the Project Area were determined to identify any areas at the greatest risks of exposure to fires originating at the Project Area, the distance of identified areas to the Project Area, and the availability of fire response. Wildfire potential in and around the Project Area was evaluated to determine the risk of wildfire occurring within or reaching the Project Area.
- Existing city (Laramie), State (Wyoming), and national crime statistics were gathered and qualitatively evaluated to determine existing and potential safety risks to the public or workers from illegal or criminal activities in the Project Area or at Project facilities.
- Qualitative and quantitative information was gathered for existing emergency response service providers, including law enforcement, fire response, emergency medical services, and emergency responders within and around the Project Area to evaluate response times, existing capacities or future capacity needs, and available resources (e.g., number of trucks, availability of medivac, etc.).
- Project-related and existing sources of EMFs and corona were gathered and evaluated with existing literature to qualitatively determine potential exposure risks.
- Standard acoustic engineering methods that conform to International Organization for Standardization Standard 9613-2 were used in the noise analysis using DataKustik GmbH's CadnaA, the computer-aided noise abatement program. Operational broadband sound pressure levels were calculated assuming that all WTGs are operating continuously and concurrently at the maximum manufacturer-rated sound level. The sound energy was then summed to determine the equivalent continuous A-weighted downwind sound pressure level at a given point of reception. The WTGs' sound power levels and modeling methods are representative of when the wind is blowing from the WTGs to the NSA.
- A noise scenario assessment was performed using a representative layout that incorporated the maximum number of WTGs and the WTG model with the highest sound emission levels as well as the lowest proposed hub height.
- The 285-megavolt-ampere transformers at the proposed substations were included in the CadnaA noise model. Transformer sound power levels were provided based on a 285-megavolt-ampere transformer.

This analysis includes the following assumptions:

- Systems would be put in place for detection and emergency shutdown of systems and safe restoration of service in the event of an emergency, such as a fire or broken blade.
- Turbines could be proactively taken out of service during icing or other extreme weather events.
- Regional electric systems are more likely than a wind energy project to be the target of intentional destructive acts, such as terrorism or sabotage.

3.10.5.3 *Proposed Action*

Issue Statement #1: Would construction, operations and maintenance, or decommissioning activities lead to, or contribute to, increased risks of accidents or injuries to public and worker health and safety?

Construction, O&M, and decommissioning of the Project would include the use and movement of Project-related vehicles and equipment, and flammable, volatile, and hazardous materials, and would result in exposure to hazardous site conditions and terrains. Increased health and safety risks to the public or workers, if present in the Project Area, could potentially occur in the event of the following:

- Vehicle accident
- Misuse or malfunction of equipment
- Inadvertent spill or unprotected exposure to flammable, volatile, or hazardous materials
- Falling overhead objects
- Trips and falls, including falls into open excavations
- Exposure to blasting, explosion, hot equipment, and welding
- Electrocutation
- Failure of permanent infrastructure, such as blade breakage
- Incidents during weather events, such as ice throw, strong winds, or tornados

Appropriate setbacks have been established as part of the Project design between Project siting corridors and other infrastructure, such as residences and public roads, to minimize potential health and safety risks to the public during construction, O&M, and decommissioning. Setbacks would provide safe distances, as defined by Albany County's wind energy siting regulations (Albany County 2015), between the siting corridors and areas typically accessed by the public (GEN-1). Existing fences, gates, and other access controls (e.g., cattle guards) would be maintained throughout all stages of the Project, and, if deemed necessary, security guards or access attendants could be employed during construction to prevent unauthorized access (GEN-6). During construction and operations, chain-link fencing would be installed at the substation, switchyard, and outdoor storage area to prevent unauthorized entry (Public Health and Safety [PHS]-9). In areas where public access is available, such as State-owned land that is open to the public, Project personnel would coordinate with the State land office to identify appropriate temporal and spatial access restrictions during construction and operations (PHS-11). All roads constructed for the Project would include signage identifying them as private roads for use only by authorized personnel (PHS-12). As a result, impacts to public health and safety because of exposure to on-site Project-related risks would not be anticipated.

The Project would be constructed and operated in compliance with applicable zoning, siting, and environmental regulations, which include implementation of appropriate measures to protect worker safety (GEN-1). The Project would also implement necessary protections for worker health and safety in accordance with OSHA (PHS-5), in addition to other applicable State, county, and local regulations and permit requirements that establish safety standards. Training would be required for specific Project workers, including appropriate environmental and health and safety procedures, requirements, and site rules (PHS-1); identification, handling, and management of hazardous materials (HAZ-1); first aid and cardiopulmonary resuscitation (CPR) (PHS-4); and job responsibilities and conformance with safety procedures (PHS-5). Project personnel would communicate with local emergency response services to develop response or evacuation plans and procedures in the event of an emergency, and routine

coordination would continue throughout the life of the Project (PHS-2). An Emergency Response Plan would be prepared in coordination with Albany County emergency services to ensure the Project's policies and procedures are consistent with those already established for the county (PHS-13). Implementation of all regulatory and permit requirements, training, and emergency and safety plans and practices would minimize risks to worker health and safety.

A Transportation and Traffic Management Plan would be developed and implemented in coordination with Wyoming Department of Transportation (WYDOT) and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize potential hazards from increased truck traffic and worker traffic (Transportation [TRANS]-1). Project-related travel during construction would be restricted to routes identified in the Project Site Plan (GEN-3), which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment. Speed limits would be implemented on Project routes during all stages of the Project (GEN-4), and because access restrictions would be implemented on roads constructed for the Project (PHS-12), the potential for unauthorized use on these roads that could contribute to traffic hazards would be minimized. The implementation of traffic controls and planning would reduce the potential for vehicle accidents that could lead to worker injury.

Construction equipment would be outfitted with OSHA-required safety devices, and appropriate personal protective equipment (PPE) would be provided to and required of construction workers or visitors to the Project Area (PHS-6). The electrical design of the Project would comply with Wyoming electrical safety codes and standards (Wyoming Department of Fire Prevention and Electrical Safety 2020), which include the enforcement of the National Electric Code to reduce the risk of electrocution or other electrical-related incidents during the use of equipment. Equipment used during construction, O&M, and decommissioning of the Project would be periodically inspected and maintained in good working condition (GEN-5), thereby limiting the potential for equipment malfunction that could lead to injury. In addition to these equipment-related protocols, the use of equipment would be limited to workers trained for their use, and as a result, the potential for misuse or malfunction of equipment that could lead to worker injury would be minimized.

Project-related vehicles would be fueled in accordance with safety procedures to minimize the risk of fires and spills (PHS-3). Appropriate training for the identification, handling, and management of hazardous materials, implementation of emergency response plans and procedures, and use of PPE, as described above, would reduce the potential for inadvertent spills of hazardous materials and avoid unprotected exposure to flammable, volatile, and hazardous materials. In addition, spill containment materials would be present on-site for immediate remediation of accidental spills (HAZ-3). These measures, in addition to limiting the use of equipment to only those trained for their use, would also reduce risks of accidents related to blasting, explosion, hot equipment, and welding.

Incidental accidents could occur in the Project Area, including falling overhead objects or trips and falls, including falls into open excavations. The implementation of safety protocols, training, and communications as described above would reduce the potential for these types of incidents. In addition, plastic mesh fencing would be installed near excavated and trenched areas, material laydown areas, or other areas deemed hazardous to avoid falls. Any open holes or trenches without fencing would be covered or fenced (PHS-10).

Workers present at the Project Area during operations would be limited to only those needed for maintenance, inspections, or other operational requirements. The risk of failure of permanent infrastructure, such as blade breakage during operations, has decreased over time. As of 2015, the worldwide rate of blade failure is approximately 3,800 blades a year, or approximately 0.5 percent (Campbell 2015). In addition to the limited potential for blade failure, the risk of a worker being present

at the time and in the vicinity of failing infrastructure would be negligible. Ice throw from wind turbines could occur if ice builds up on the turbine blades. The accumulation of ice is dependent on local weather conditions and the operational state of turbines (Wahl and Giguere 2006). Gravity and the mechanical forces of the moving blades could cause ice to be shed from the turbine, and the rotating blades could propel ice fragments from the turbine at a distance no more than approximately 1.5 times the turbine blade tip height, which is less than the turbine setback from public roads identified in the WECS permit (WECS Permit Condition 4). Falling ice could cause damage to nearby structures or Project personnel (Wahl and Giguere 2006). During operation of the Project, wind turbines would be operated in conformance with the manufacturer's operational parameters (PHS-7). Staff would perform routine inspections of wind turbines and other Project facilities to identify any potential safety hazards (PHS-8), and if necessary, turbines could be proactively taken out of service during icing or other extreme weather events with strong winds or tornados. A SCADA system would be put in place to monitor power outputs and for managing the system, which would allow for the detection and emergency shutdown of infrastructure in the event of an emergency, such as a fire or a broken blade.

The design of the Project, including the implementation of safety requirements, training, and protocols, as well as development and implementation of safety and emergency response planning, would minimize the risk of worker injury during construction, O&M, and decommissioning. As a result, injury rates associated with the Project would not be expected to exceed national occupational injury and illness rates.

Issue Statement #2: Would construction, operations and maintenance, and decommissioning activities lead to or contribute to increased risks of fires or wildfires that would increase risks of injuries to the public and workers?

Accidental fires could occur during construction, O&M, or decommissioning of the Project because of the use of construction equipment in dry areas; accidental ignition of flammable liquids; mechanical malfunction; or from personnel smoking, particularly if a cigarette or other ignited material is not properly extinguished or if smoking occurs near flammable materials. Lightning strikes to infrastructure or damage to infrastructure from other natural weather events could also result in incidental fires. A fire event would increase risks of injury to the public or workers if present in the Project Area. Additional information on fire and wildfire risks is presented in section 3.16, "Wildland Fire."

The rate of WTG fires is estimated to be one in 1,700 to 2,000 each year globally and would, therefore, be considered a rare event (Firetrace International 2019). The most commonly identified ignition sources (in decreasing order of importance) are lightning strike, electrical equipment malfunction, hot surface ignition, and hot work maintenance (Uadiale et al. 2014). As described under Issue Statement #1, appropriate setbacks have been established between Project infrastructure and residences and public roads to provide safe distances from areas potentially occupied by members of the public. Public access to the Project Area and specific Project facilities would be restricted through existing fences, gates, or other access controls to prevent unauthorized entry. Where fencing or gates are not present, private property signs would be added to deter unauthorized entry. As a result, impacts to public health and safety because of on-site exposure to Project-related fires, should they occur, would not be anticipated.

The Project would be constructed and operated in compliance with appropriate zoning and siting and environmental regulations (GEN-1), in addition to fire-related safety standards and regulations. In compliance with the Albany County WECS Permit, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels (see table 2-6). ConnectGen has developed an Emergency Response Plan in coordination with the Albany County fire warden, emergency management coordinator, and county sheriff to meet applicable fire codes, regulations, and best practices. Additional measures would be implemented prior to construction of the Project and, as necessary, throughout the life of the Project, including worker training in emergency response and health and safety requirements and

procedures; fueling of vehicles in accordance with procedures to minimize fire risks; PPE requirements; operation of equipment and infrastructure in accordance with manufacturer's parameters; and routine inspections on all Project facilities and infrastructure to identify and respond to potential fire risk (as described under Issue Statement #1 and PHS-15). Wind turbines would be outfitted with proper grounding and lightning protection systems to reduce the risk of fires in the event of a lightning strike (PHS-16). The electrical design of the Project would comply with Wyoming electrical safety codes and standards (Wyoming Department of Fire Prevention and Electrical Safety 2020), which include the enforcement of the National Electric Code to reduce the risk of equipment-related fires. All wind turbines and associated electrical equipment would be constructed with nonflammable material around the base of the equipment to reduce the spread of fire should equipment ignite (PHS-17). All construction and maintenance vehicles would be equipped with fire extinguishers to allow timely response to equipment fires. Fire suppression equipment, including a trailer-mounted tank of 500 gallons or more capacity with a gasoline powered pump, would be maintained in the Project Area during construction and operations (PHS-19). If an on-site fire were to occur, Project personnel would alert the Laramie Fire Department and Tie Siding Volunteer Fire Department (PHS-18), in accordance with implemented emergency response plans. Systems could also be put in place for the detection and emergency shutdown of infrastructure in the event of an emergency, such as a fire.

Fire prevention measures implemented prior to and throughout construction, O&M, and decommissioning of the Project would reduce the risk of a Project-related fire. The risk of a fire from a WTG would be considered rare, and the risk of fire from other Project infrastructure or activities would be minimized through the implementation of EPMs and best practices. Additionally, in fulfillment of WEC's Special Condition #2, ConnectGen has committed to installing fire suppression equipment within the nacelle of each turbine. This equipment would detect and extinguish fires within the nacelle, thereby reducing the risk of uncontrolled fire within the turbine, and the potential spread of a fire outside to the turbine. Should a fire occur, fire response measures implemented throughout the life of the Project would minimize the risk of a fire that could not be controlled or addressed through worker response (e.g., fire extinguisher) or fire response providers. These measures would also minimize the potential for the Project to contribute to wildfire risks.

Although wildfires could occur in or around the Project Area, the overall risk for their potential is very low to moderate. The addition of Project facilities would affect this risk as noted in section 3.16, "Wildland Fire." Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14). The risk of a wildfire would continue to be monitored throughout the life of the Project, and should a wildfire occur with the potential to reach or affect the Project Area, workers would be evacuated in accordance with the Emergency Response Plan. If necessary, infrastructure would be shut down. The risk to infrastructure from wildfires or the risk of infrastructure spreading wildfires would also be minimized through the use of nonflammable materials around the base of equipment. As a result, potential risk on worker health and safety from wildfires would be minimized.

Issue Statement #3: How would Project activities and infrastructure, including access roads, provide increased opportunities for illegal/criminal activities?

Illegal or criminal activities could occur at the Project Area during construction, O&M, or decommissioning. These activities would be similar to criminal activities experienced at other developed sites or infrastructure and could include trespassing and unauthorized access, theft, vandalism, or other destructive acts, which could pose safety risks to those parties, or to landowners and guests or workers, if present in the Project Area.

Setbacks between Project infrastructure and residences and between the Project Area and public roads (GEN-1), in addition to the rural setting of the Project Area, would minimize the risk of Project facilities

being the target for illegal and criminal activities. Many private properties within the Project Area are signed with no trespassing notices, are fenced off, or include gates or other access controls to prevent or deter unauthorized access. These access controls would be maintained throughout all stages of the Project, and, if deemed necessary, security guards or access attendants could be employed during the construction stages to prevent unauthorized access (GEN-6).

It is assumed that regional electric systems are more likely than wind energy projects to be the target of intentional destructive acts, such as terrorism or sabotage; however, the substations and interconnection switchyard of the Project would be the most critical and vulnerable. During construction and operations, chain-link fencing would be installed at the substation, interconnection switchyard, and outdoor storage areas to prevent unauthorized entry (PHS-9). In areas where public access is available, such as State-owned land that is open to the public, Project personnel would coordinate with the State land office to identify appropriate temporal and spatial access restrictions during construction and operations (PHS-11). Project roads would include signage identifying them as private roads for use only by authorized personnel (PHS-12).

In addition to worker training for identifying and responding to emergency events, including illegal or criminal activities (PHS-1 and PHS-8), workers would perform regularly scheduled inspections of equipment and facilities that would help identify and respond to damage or vulnerability to illegal or criminal activities (GEN-5). As a result, the potential for illegal or criminal activities in the Project Area would be minimized, and risks to workers would be minimized. Because public access to the site would be restricted to the extent possible, and due to the sparsely populated area within and around the Project Area, increased public exposure to risks from illegal or criminal activities are not anticipated.

Issue Statement #4: Does existing law enforcement have the capacity to address criminal activities at the Project Area? Do existing emergency response providers have the capacity and equipment to respond to incidents at the Project Area?

As described in PHS Impact Statements #1 through 3, public and worker safety risks related to Project activities and infrastructure would be avoided or minimized to the extent possible. Because risks related to increased injury or illness from the Project would be reduced through the Project design and implementation of industry standards and regulatory requirements, Project-related demands on emergency services are not anticipated to result in the exceedance of capacities or materials of existing emergency response providers servicing the Project Area. Local land use planning would continue to monitor the needs of emergency service providers and would plan for and implement expansions as deemed necessary.

Changes to transportation infrastructure, such as roads, from the Project would be limited to access roads with limited or restricted non-Project use. As a result, changes in emergency response routes would be avoided; however, as described in section 3.13, "Transportation and Access," traffic delays could occur during the transport of large equipment and infrastructure (e.g., turbine components). Traffic controls would be implemented as necessary during the transport of large equipment and infrastructure along public roadways or across at-grade railroad crossings. The Emergency Response Plan would be developed in coordination with local and county emergency services (PHS-2 and PHS-13), and coordination would continue throughout the life of the Project. Prior to the start of construction, a Transportation and Traffic Management Plan would be developed in coordination with WYDOT and Albany County to minimize changes to traffic and circulation patterns and avoid access or delays during the movement of turbine components (TRANS-1). As a result, degradation to emergency response times or services due to Project-related activities would not be anticipated.

Issue Statement #5: What would be the contributions of the Project to EMF and corona and how would these contributions lead to or contribute to worker or public health and safety risks from exposure?

Existing and Project-related transmission lines, electric distribution lines, and other electric devices in and around the Project Area contribute to sources of EMF. EMFs from these sources are categorized as nonionizing and are comparable to computers and less than radios, televisions, and cell phones, which are generally perceived as harmless to humans. Existing and Project-related transmission and distribution lines can produce corona, which, at conductors, could produce small amounts (few parts per million) of ozone.

The intensity of EMF rapidly decreases with distance from the source, and ozone that could be created from conductors would not be measurable at any distance from the source (WAPA 2012). As described in literature, EMFs from transmission lines would be similar to typical background levels at a distance of 300 feet (NIEHS 2002). Appropriate setbacks, as described under Issue Statements #1 through 3, have been established between Project infrastructure and residences and public roads to provide safe distances to areas potentially occupied by members of the public. Public access to the Project Area and specific Project facilities would be restricted through existing fences, gates, or other access controls to prevent unauthorized entry. There are no known negative effects to human health from EMFs or ozone at the levels anticipated on the Project Area. Very few members of the public would be close enough to Project facilities for any exposure to occur, and then for only brief periods. There would be no impact to the public from EMFs or ozone.

Workers would be in closer proximity to existing and Project-related sources of EMF and corona than the public. Project workers would have more potential exposure than the public, but at the levels expected, they would not be affected. In addition, the Project would be designed, constructed, operated, and maintained following several measures to protect the health and safety of both the public and workers. The Project design would be constructed and operated in compliance with appropriate zoning and siting and environmental regulations (GEN-1). Additional measures would be implemented prior to construction of the Project and, as necessary, throughout the life of the Project, including worker training in health and safety requirements and procedures, PPE requirements, and operation of equipment and infrastructure in accordance with manufacturer's parameters (as described under Issue Statements #1–2). The Project would include development and implementation of an Health, Safety, Security, and Environment Plan that would incorporate all necessary protections for worker health and safety in accordance with OSHA (PHS-5), in addition to other applicable State, county, and local regulations and permit requirements that establish safety standards. During construction and operations, chain-link fencing would be installed at the substation and switchyard to prevent unauthorized entry (PHS-9), including restricting access to only those workers who are trained and have responsibilities for these facilities, thereby reducing the potential for workers to be near these potential sources of EMFs and corona.

As described above, EMFs from existing and Project-related sources are nonionizing and generally perceived as harmless, and any ozone produced from sources capable of producing corona would not be measurable at any distance. Measures implemented as part of the design of the Project would minimize worker exposure to EMFs and ozone. As a result, potential risk to public health and safety from existing or additional sources of EMFs and corona would be avoided and potential risk to worker health and safety would be minimized.

Issue Statement #6: How would noise generated by construction of the Project affect sensitive receptors, and what impacts could remain after mitigation is applied?

Estimates of noise from the construction of the Project are based on a roster of the maximum amount of construction equipment used at one site in the Project Area during the noisiest stage of construction (road construction). The construction equipment used in the analysis is given in table 3-26.

Table 3-26. Project Construction Equipment Roster Used for Noise Analysis

Equipment Type	Quantity	Maximum Noise Level¹ at 50 Feet	Maximum Noise Level¹ at 2,000 Feet
Bulldozer	4	91	59
Hoe and ram hoe	2	88	56
Haul truck	15	96	64
Grader	2	88	56
Compactor	3	85	53
Total maximum noise level	–	98	66

Source: Tetra Tech (2020n).

¹ Measured in dBA.

Maximum estimates of construction equipment noise levels meet or exceed previously recorded existing ambient noise levels of 45 dBA L_{eq} to 53 dBA L_{eq} (WAPA 2012). The nearest NSA is located 1,880 feet from WTG locations and is a participating landowner. The maximum noise level at the nearest sensitive receptor during the noisiest stage of construction would be approximately 66.5 dBA, similar to standing 3 feet from a vacuum cleaner. Construction of the Project would directly and unavoidably impact noise levels, but the impacts would be short term during construction, ceasing with the use of the construction equipment. Because construction noise is exempt from the Albany County wind energy siting regulations (Albany County 2015), construction of the Project would not violate any allowable noise levels established by Federal, State, or local laws, regulations, or guidelines.

Vibration from activities associated with Project construction would not be noticeable at the nearest NSA (Tetra Tech 2020n).

If hard rock is encountered within the planned foundation area of WTGs, blasting could be required to loosen or fracture the rock. Blasting would be limited to between sunrise and sunset if blasting is necessary during construction. Blasting plans would be required of all contracted blasting specialists, demonstrating compliance with State and local blasting regulations, including the use of properly licensed personnel and obtaining necessary permits and authorizations.

Issue Statement #7: How would noise generated by operation of the Project affect sensitive receptors, and what impacts could remain after mitigation is applied?

Acoustic modeling was completed for WTG operations during maximum rotation using a conservative layout scenario of 149 turbine locations and the WTG model with the highest sound emission levels as well as the lowest proposed hub height (the GE 3.0-127 WTG model). The calculations also included both substations and associated transformers. The predicted sound level impacts across all 184 NSAs are summarized in table 3-27.

Table 3-27. Project Operations Acoustic Modeling Results Summary

Received Sound Level Ranges (dBA)	Number of NSAs
< 30	36
30 to 35	76
35 to 40	36
40 to 45	32
45 to 50 ¹	3
50 to 55 ¹	1
> 55	0

Source: Tetra Tech (2020n).

¹ Ambient noise levels in the Project Area are 45 to 53 dBA.

The Albany County wind energy siting regulations (Albany County 2015) limit noise from commercial wind energy facilities to 55 dBA as measured at a point along the common property lines between a nonparticipating private property and a participating property (Albany County 2015). No NSAs fall within areas that would be expected to experience noise levels above 55 dBA. One NSA falls within an area that would exceed the maximum previously recorded existing ambient noise levels of 53 dBA L_{eq} (WAPA 2012). There are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between nonparticipating private property and a participating property (Tetra Tech 2020n); however, because the predicted sound level impacts were calculated using the worst-case scenario of turbine numbers, hub heights, and generated noise, it is highly likely the actual noise levels would be less than calculated. In the unlikely case that neither the turbine layout, hub height, nor the WTG model changes from the conservative scenario modeled, and if written landowner permission cannot be obtained at the locations where the sound level slightly exceeds 55 dBA, micrositing of turbines could be necessary to comply with the Albany County wind energy siting regulations (Albany County 2015).

3.10.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for public health and safety would continue.

3.10.6 Public Health and Safety Conclusions

Potential risks to worker health and safety would be unavoidable; however, these risks would be minimized to the extent possible, and injury rates associated with the Project would not be expected to exceed national occupational injury and illness rates. Fire risks and the potential for illegal or criminal activities associated with the Project would be minimized and would not increase the risk of public or worker exposure to health or safety risks. The Project would be an unlikely target for intentional destructive acts because disrupting the entire Project would not create a major power system issue. The Project would not exceed the capacities or materials or existing emergency responders that service the Project Area, nor would Project activities result in traffic delays that would lead to degradation of emergency response times. The Project would not increase the public's exposure to EMFs or corona sources, and workers would not be exposed to Project-related EMFs or corona sources. Based on the analyses of these issues, no significant impacts would be anticipated related to public or worker health and safety.

Construction of the Project would directly and unavoidably impact noise levels at sensitive receptors, but the impacts would cease with the end of construction. Because construction noise is exempt from the Albany County wind energy siting regulations (Albany County 2015), construction of the Project would not violate any allowable noise levels established by Federal, State, or local laws, regulations, or guidelines. Vibration from activities associated with Project construction would not be noticeable at the nearest NSA. If any blasting is required during Project construction, it would be limited to the hours between sunrise and sunset and comply with State and local blasting regulations, including the use of properly licensed personnel and obtaining necessary permits and authorizations. Acoustic modeling demonstrated that noise generated by Project operations would not exceed 55 dBA at any sensitive receptors. The acoustic modeling of the worst-case scenario indicated a possibility that there would be some locations of common property lines between nonparticipating private property and a participating property where the sound level might reach slightly above 55 dBA; however, it is highly unlikely that the actual noise levels at these locations would be as high as the worst-case scenario modeled. If the worst-case scenario occurs and if written landowner permission cannot be obtained at the locations where the sound level slightly exceeds 55 dBA, micro-siting of turbines could be necessary to comply with the Albany County wind energy siting regulations (Albany County 2015). Based on the analyses of these issues, no significant noise impacts would be anticipated.

3.11 Recreation Resources

This section describes recreation resources and opportunities and analyzes potential impacts to these resources from construction, O&M, and decommissioning of the Project.

3.11.1 Regulatory Background

The following State and local regulations establish requirements, standards, and guidelines for the management of recreation resources and are applicable to the Project. There are no Federal recreation regulations applicable to the Project:

- A special-use lease is required by the Wyoming State Lands Office for a ROW on State Trust Lands under the provisions of W.S. 36-5-101 et seq. Special-use leases are authorized under Chapter 5 of the Special Use Leasing of the Board of Land Commissioners Rules and Regulations promulgated under the authority of W.S. 36-2-107 and W.S. 36-5-114 through W.S. 36-5-116. Special Use means any use of State land other than for grazing, agriculture, the extraction of minerals, or uses authorized under easements granted pursuant to Chapter 3 of the Rules and Regulations, or hunting, fishing, and general recreational uses pursuant to Chapter 13 of the Rules and Regulations. Wind energy projects on State Trust Lands require a special-use lease.
- The Albany County Comprehensive Plan, as described in section 3.8, “Land Use,” includes the following land use objectives that are also applicable to recreation resources:
 - LU1—Promote development patterns that are growth efficient and logically sequenced to be efficiently served by public services. Direct development to specific areas, facilitating this by phasing infrastructure and service investments.
 - LU2—Preserve open spaces, agricultural lands, and environmentally sensitive areas that are not currently suitable for development.
 - LU4—Provide recreational opportunities.
- The 2007 Conservation Plan guides the FWS management of the Laramie Plains NWR system, which includes Bamforth NWR, Hutton Lake NWR, and Mortenson Lake NWR (FWS 2007b). The plan outlines important resource components, directs management decisions to maximize unique potential of each refuge, and evaluates wildlife-dependent recreation to determine

appropriate public use opportunities. The plan also establishes the following visitor services goal for the Hutton Lake NWR:

- Provide wildlife-dependent recreational opportunities to a diverse audience when the administration of these programs does not adversely affect habitat management objectives.

Additional information on the recreation regulatory background applicable to the Project is included in the “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.11.2 Data Sources

Data sources used to characterize existing (i.e., baseline) conditions and analyze potential impacts to recreation resources from the Project include the following:

- NWRs (FWS 2019c)
- WYGFD hunter management areas (HMAs) and walk-in areas (WIAs) (WYGFD 2020a, 2020b, 2020c); Colorado Parks and Wildlife (CPW) WIAs (2020a)
- WYGFD Classified Streams and fishing WIAs (WYGFD 2020d); CPW Gold Medal Waters and Fishing Access Areas (CPW 2020b, 2020c)
- KOA Campgrounds (KOA 2020a, 2020b)
- List of Colorado and Wyoming Museums (Macey 2017)
- Personal communication with WYGFD staff on hunting resources within the analysis area (Withroder 2019)

Additional details on these data sources are described in the “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.11.3 Analysis Area

The analysis area for overall recreation resources and opportunities is the Project Area plus a 50-mile buffer around the Project Area to capture the extent of recreation resources that would most likely be used by Project workers.

Narrowed analysis areas have been identified for the following topics to capture recreation resources and opportunities within or near the vicinity of the Project Area that could be restricted, precluded, or altered because of the Project:

- Restrictions or closures of recreational opportunities: The analysis area for analyzing changes to recreational opportunities is the Project Area, which captures the extent to which Project activities or infrastructure could result in restrictions or closures of recreational areas and access.
- Quality of hunting opportunities: The analysis area for analyzing changes to hunting opportunities is the Project Area plus a 1-mile buffer around the Project Area to capture the extent of the area that big and small game would avoid due to human presence or noise during construction, O&M, and decommissioning of the Project.

3.11.4 Baseline Description

The following summarizes existing recreation resources and opportunities, including hunting, fishing, camping, hiking, parks, museums, and other local attractions, within the analysis area and, where applicable, within the Project Area. Additional details on these resources are provided in the “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.11.4.1 *Hunting*

There are numerous public and private hunting opportunities within the analysis area, including the following:

- 12 HMAs: HMAs are parcels of public or private land where WYGFD manages access for hunters. HMAs within the analysis area support hunting of big game species, including elk, antelope, and deer.
- Five WYGFD hunting WIAs: hunting WIAs are tracts of private land or inaccessible public land on which the WYGFD has leased rights for public hunting enjoyment (WYGFD 2020c). Hunting WIAs within the analysis area support hunting of species such as deer and antelope.
- 26 CPW Public Access Program lands. These lands provide hunting access.
- Public areas providing hunting opportunities, including Curt Gowdy State Park, Medicine Bow-Routt National Forests, Arapahoe-Roosevelt National Forest, and Arapahoe NWR.

The Cherokee Park HMA, which comprises 3,166 acres of private and State lands, is in the southern portion of the Project Area and supports big game (elk) hunting. The Cherokee Park HMA is open six times per year to 10 hunters at a time, allowing up to 60 hunters each year (WYGFD 2020a). Because public hunting access is limited in and around the Project Area, the Cherokee Park HMA is regularly used by hunters (Withroder 2019). Hunting areas and opportunities are shown in figure 3-13 and figure 3-14.

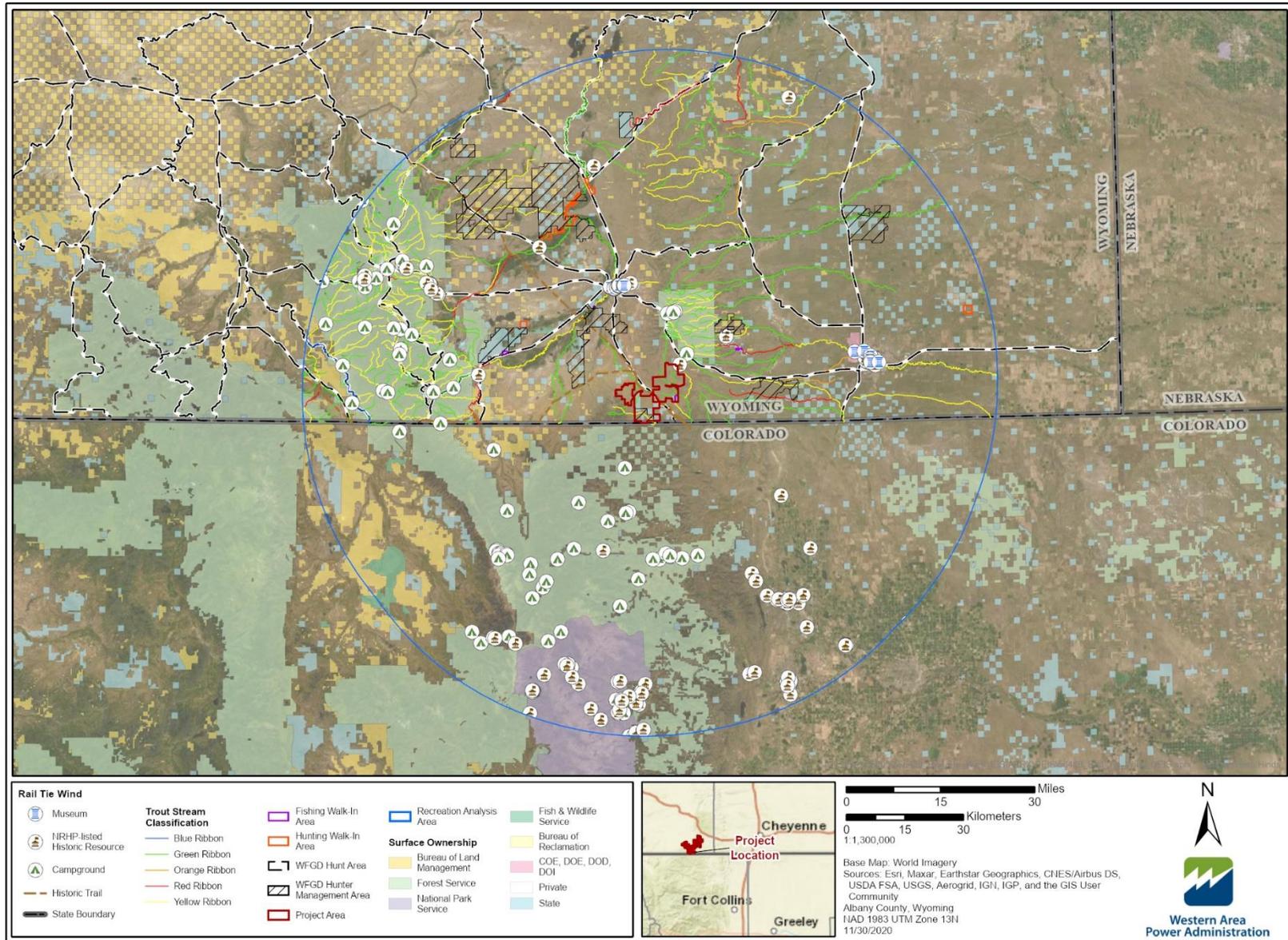


Figure 3-13. Recreational opportunities within the analysis area.

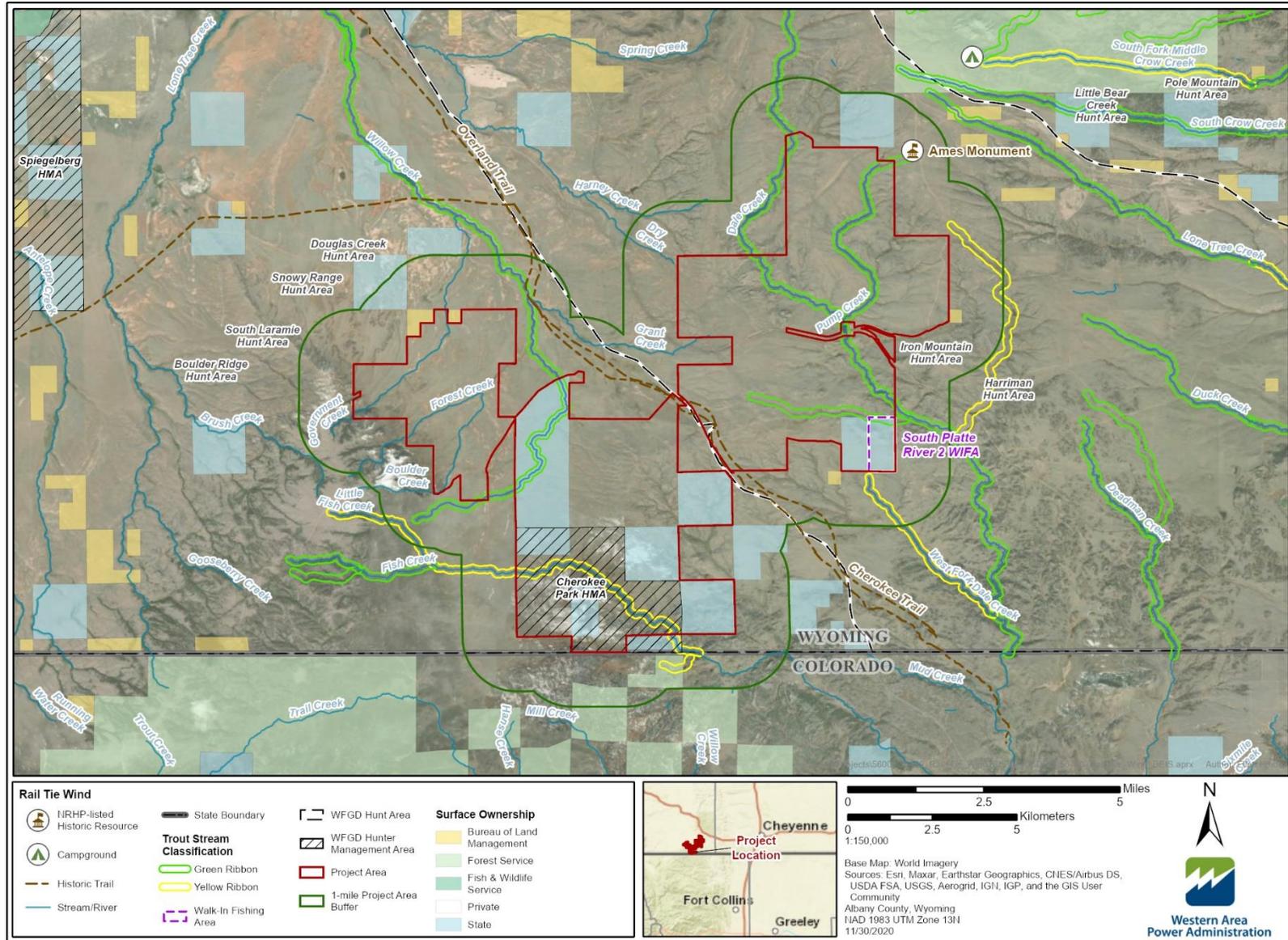


Figure 3-14. Recreational opportunities within the Project Area.

3.11.4.2 Fishing

Recreational fishing opportunities are classified by WYGFD based on the sport fish (trout) density in pounds per mile to demonstrate productivity of the stream resources for fishing purposes (WYGFD 2020a). WYGFD stream classifications include Blue Ribbon streams (national importance; greater than 600 pounds per mile); Red Ribbon streams (statewide importance; 300–600 pounds per mile); Yellow Ribbon streams (regional importance; 50–300 pounds per mile); Green Ribbon streams (local importance, greater than 50 pounds per mile); and Orange Ribbon streams (streams with cool/warm water game fish present).

Numerous WYGFD-classified streams are present throughout the analysis area, as shown in figure 3-13, including Blue Ribbon and Red Ribbon streams. Blue Ribbon streams within the analysis area include a portion of Sybille Creek, located approximately 45 miles north of the Project Area, and a portion of the Platte River, located approximately 40 miles west of the Project Area. Fishing opportunities are also present within the Project Area, as shown in figure 3-14. Within the Project Area, there are eight named streams, four of which are WYGFD-classified streams and are summarized in table 3-28.

Table 3-28. Wyoming Game and Fish Department–Classified Streams within the Project Area

Stream Name	WYGFD Stream Classification	Length within the Project Area (miles)	Public Access Length within the Project Area (miles)
Fish Creek	Yellow	4.0	0
Dale Creek	Green	5.0	0
Pump Creek	Green	4.0	0
Willow Creek	Green	3.2	3.0

Source: WYGFD (2020a).

Numerous other fishing resources and opportunities are provided throughout the analysis area and the Project Area, including the following:

- **Fishing WIAs:** A fishing WIA is a tract of private land or inaccessible public land on which the WYGFD has leased rights for public fishing enjoyment (WYGFD 2020d). Public access to fishing WIAs is limited to the time period and specific species agreed upon by the landowner and the WYGFD. Public access to any fishing WIA is restricted to foot traffic only. There are three fishing WIAs in the analysis area, as shown in figure 3-13, and one of these—the South Platte River Area 2—is located within the Project Area. This fishing WIA is identified as an area for brook trout fishing.
- **Gold Medal Waters:** CPW designates high-quality resources for fishing as Gold Medal Waters that are defined as those water resources providing the highest quality cold water habitats for trout and having the capability to produce many quality-sized (14 inches or longer) trout (CPW 2020b). The only Gold Medal Water within the analysis area is a portion of the North Platte River, located approximately 40 miles west of the Project Area (CPW 2020b).
- **Fishing opportunities on CPW-managed lands** include State Fish Units, SWAs, and State Trust Land Public Access Program Lands. Three CPW Fishing Access Properties and more than 90 CPW Fishing Access Points are located within the analysis area (CPW 2020c). The closest Fishing Access Point is located within Cherokee SWA along the North Fork Cache La Poudre River, approximately 7 miles south of the Project Area.

3.11.4.3 Camping

There are no campgrounds within the Project Area, although there are more than 90 public and private campgrounds in the vicinity of the Project Area (i.e., within the analysis area). Most of these sites are public campgrounds located within national forest and park lands, with others located within State and county parks and State public access and wildlife areas. These campgrounds offer a variety of sites for tents, recreational vehicle (RV) camping, and dispersed camping; amenities such as restrooms and showers; and recreational opportunities, including hiking, rock climbing, fishing, and boating, among others. The closest campgrounds to the Project Area are the Vedauwoo Campground, which is located approximately 2.5 miles from the Project Area and includes 28 sites; Tie City Campground, which is located approximately 8.0 miles from the Project Area and includes 15 sites; Yellow Pine Campground, which is located approximately 8.3 miles from the Project Area and includes 19 sites; and Curt Gowdy State Park, which is located 8.9 miles from the Project Area and includes 159 sites. Dispersed camping is also available in Colorado within the Cherokee SWA Middle Unit and Upper Unit, which are located 5.5 miles from the Project Area; the number of sites at the Cherokee SWAs is not available.

Private KOA campgrounds are also located in the analysis area but outside the Project Area. The Laramie KOA and Fort Collins KOA are the closest private campgrounds to the Project Area. These campgrounds allow long-term stays and offer RV utility hookups, cabins, tent sites, and other lodging options (KOA 2020a, 2020b).

Campgrounds and camping resources within the analysis area are shown in figure 3-13. The full list of campgrounds within the analysis area is provided in “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.11.4.4 National and State Parks, Forests, and National Wildlife Refuges

There are no national parks, forests, or wildlife refuges or State parks within the Project Area; however, there are a number of Federal parks, forests, and wildlife refuges and State parks located within the analysis area that are open to the public, as shown in figure 3-15. These include the Arapahoe-Roosevelt National Forest (including Pawnee National Grassland), Medicine Bow-Routt National Forests (including Vedauwoo Recreation Area), Rocky Mountain National Park, Hutton Lake NWR, Arapaho NWR, Curt Gowdy State Park, Lory State Park, Boyd Lake State Park, and State Forest State Park. These recreation areas provide a variety of recreation opportunities and attractions, including camping, hiking, biking, off-highway vehicle use, fishing, hunting, sightseeing, photography, horseback riding, birding, and sports, among others. Visitors to these recreation areas range from the thousands to more than 4.5 million.

Additional details for parks, forests, and NWRs in the analysis area are provided in “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

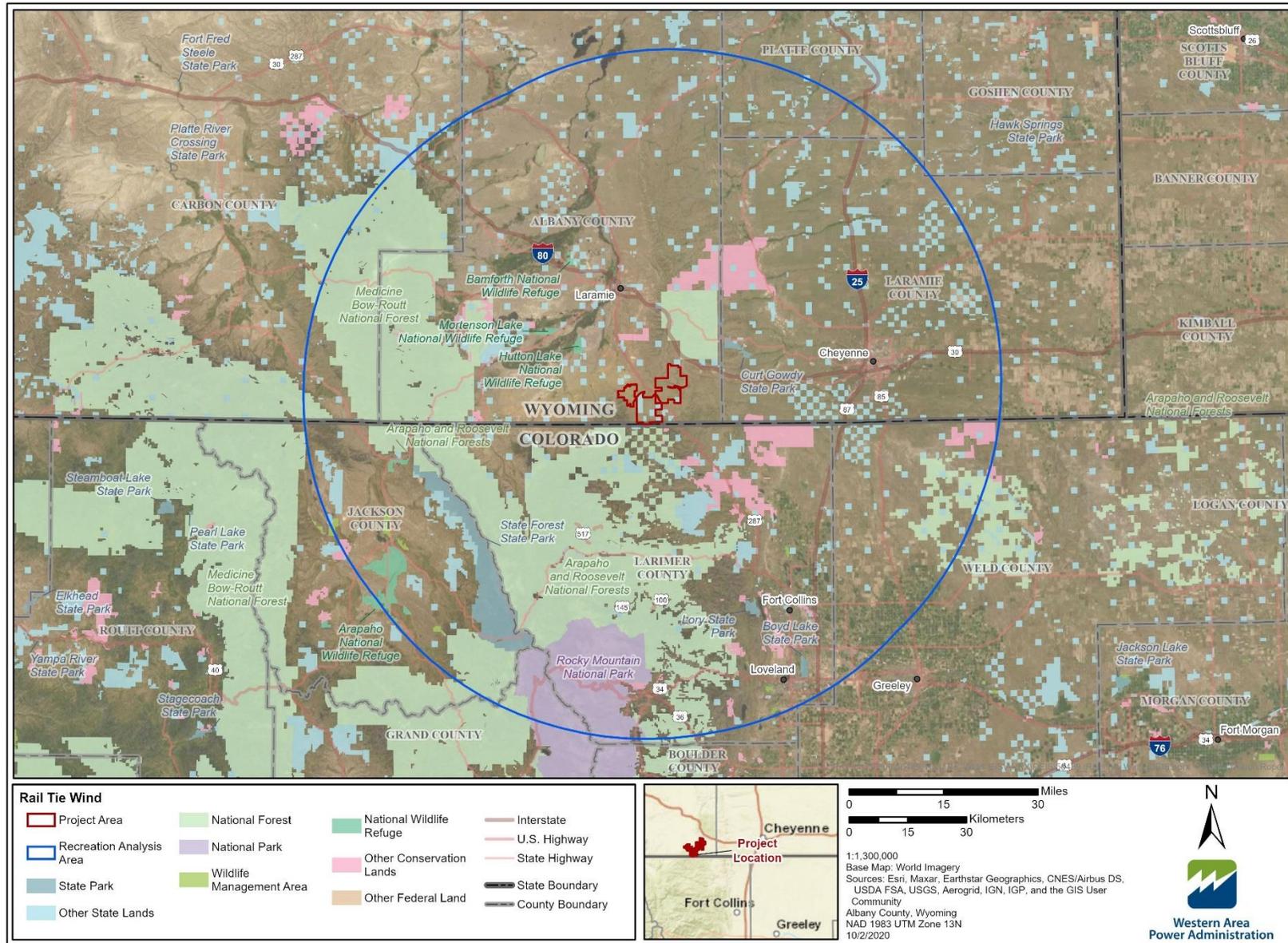


Figure 3-15. Recreation resources.

3.11.4.5 State Wildlife Management Areas and Other Conservation Lands

There are no state WMAs or other conservation lands within the Project Area. Within the analysis area, there are numerous state WMAs and TNC lands that provide a variety of recreational activities, including fishing, hunting, and camping, as described above, as well as wildlife viewing, photography, hiking, picnicking, and guided nature walks.

Wyoming state WMAs within the analysis area include the Laramie River-Jelm Wildlife Habitat Management Area (WHMA), approximately 21 miles west of the Project Area; the Forbes-Sheep Mountain WHMA, approximately 24 miles northwest of the Project Area; the Wick-Beumee WHMA, approximately 48 miles northwest of the Project Area; and the Tom Thorne-Beth Williams WHMA, approximately 43 miles north of the Project Area. There are over 30 Colorado state WMAs within the analysis area, the closest and largest of which is the Cherokee SWA, located approximately 5 miles south of the Project Area. State WMAs are managed to protect wildlife and their associated habitat and provide recreational opportunities for the public, including hiking, fishing, wildlife viewing, and hunting.

TNC has over 20 conservation easements within the analysis area, the closest of which is the Laramie Foothills Easement, located approximately 1.3 miles southeast of the Project Area and encompassing 250 acres in Colorado. The Turtle Rock/Red Buttes Easement is located approximately 6.5 miles north of the Project Area. These easements were developed to protect specific conservation values, such as water quality or migration routes, on private lands and protect these lands from future development. TNC has also identified over 30 Priority Conservation Areas (PCAs) within the analysis area, including two tracts of land near the Project Area: the Laramie Foothills PCA located approximately 0.1 mile southeast of the Project Area and the Turtle Rock PCA located adjacent to the northeastern portion of the Project Area. These areas are not owned or managed by TNC but are areas that have biodiversity significance for conservation priorities. PCAs often provide habitat for threatened and endangered species, sensitive wildlife and plants, and rare plant communities.

State WMAs and other conservation lands are shown in figure 3-15.

3.11.4.6 Museums

There are no museums in the Project Area, although there are over 30 museums located within the analysis area, as shown in figure 3-13. The closest museums to the Project Area are located within Laramie and include the Laramie Plains Museum at the historic Ivinson Mansion, as well as several museums associated with the University of Wyoming. Additional details on museums in the analysis area are provided in “Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report” (Tetra Tech 2020i).

3.11.4.7 Historic Sites and Trails

There are over 180 properties listed in the NRHP within the analysis area, as shown in part in figure 3-13. The closest NRHP-listed properties to the Project Area include the Ames Monument, an NHL located approximately 0.3 mile northeast of the Project Area, and Dale Creek Crossing, a historic railroad bridge located adjacent to and just within the northern portion of the Project Area, which are further discussed in section 3.6, “Cultural Resources and Native American Concerns.” Dale Creek Crossing is located on private lands, and access to the site is restricted (Wyoming SHPO 1986).

Multiple historic trails are found within the analysis area. The Overland and Cherokee Trails run parallel to U.S. 287 and traverse through the center of the Project Area. Within the Project Area, the Overland Trail followed the original Cherokee Trail, established in 1849 as a shortcut to the gold fields of

California (Weimer 2019). There are no public access points for the Overland Trail within the Project Area. There are three public access points within the Project Area for the Cherokee Trail. Additional information on historic sites and trails within the cultural resources analysis area are provided in section 3.6, “Cultural Resources and Native American Concerns.”

3.11.4.8 Other Points of Interest

Throughout the analysis area, there are a variety of stores, restaurants, art galleries, movie theaters, events (including Cheyenne Frontier Days and other rodeos), and other points of interest for residents and visitors to the area.

3.11.5 Impacts to Resource

This section describes potential impacts to recreation resources and recreation opportunities from construction, O&M, and decommissioning of the Project.

3.11.5.1 Impact Indicators

For the purposes of this analysis, an impact to recreation could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- Temporary or permanent restriction to, degradation of, or conflict with recreational resources or opportunities.
- Project-related human presence or noise in hunting areas at a level that would cause big or small game to avoid the area and thereby lead to a degradation of hunting quality.
- Increase in demand from Project workers on recreational resources that exceeds existing capacities.

3.11.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to recreation:

- Recreation resources and recreation opportunity areas within the Project Area were mapped to determine any overlapping areas where the Project could restrict or prevent the use of recreation resources or restrict access to recreation areas.
- Anticipated noise-producing activities and human presence during construction, O&M, and decommissioning of the Project were evaluated to determine the potential for startle of big and small game in or near the Project Area and avoidance that could degrade hunting opportunities.
- Existing recreational resources were identified in the analysis area. Capacities of recreational resources were qualitatively identified, except for nearby campgrounds. The capacities of campgrounds (i.e., sites) were quantitatively gathered through available sources, such as websites, and through conversations with appropriate agencies and land and business owners. The anticipated number of Project workers was analyzed to estimate the number of nonlocal workers that would relocate to the analysis area and would thereby increase demands on resources. These increased demands were compared to existing capacities of recreation resources to identify any potential for capacities to be exceeded or to prevent their use by non-Project recreationists.

This analysis includes the following assumptions:

- Restrictions or closures to recreation areas during O&M and decommissioning would be avoided unless a temporary restriction or closure is necessary to avoid exposure to safety risks.
- Workers would prefer to temporarily reside close to the Project Area and/or near a population center or make arrangements with private landowners to stay near the Project Area.

3.11.5.3 Proposed Action

Issue Statement #1: Which existing recreation resources would the Project conflict with or preclude?

The Project Area represents the narrowed analysis area for this issue to capture the extent to which Project activities or infrastructure could result in restrictions or closures of recreational areas or access. Construction, O&M, and decommissioning activities would require temporary restrictions to or closures of recreation areas in the Project Area. Access to portions of recreation resources in the Project Area could also be temporarily restricted due to road closures during construction, such as during the use of some portions of roads to transport turbine components to the Project Area. The decision to temporarily restrict or close portions of recreation areas or restrict access to recreation resources would depend on the timing of Project activities (e.g., if the Project activity occurs outside of hunting season, a restriction or closure would be unlikely) and the type of Project activity (e.g., scheduled light maintenance of a turbine, such as a visual check, would not require restrictions or closures, whereas heavy maintenance because of unanticipated events, such as infrastructure damage, would require restrictions or closures to protect the safety of workers and recreational users).

It is anticipated that temporary restrictions or closures could occur in portions of the following publicly accessible recreation areas within the Project Area, although their use would not be entirely precluded:

- Cherokee Park HMA
- Four non-WYGFD-classified streams
- Four WYGFD-classified streams, only one of which allows public access within the Project Area (see table 3-28)
- South Platte River Area 2 fishing WIA
- Cherokee Trail

Access to Dale Creek Crossing could also be temporarily restricted as a result of the Project; however, public access to this site is already restricted because the crossing is on private land (Wyoming SHPO 1986). There would be no permanent restrictions to or closures of recreation areas nor permanent changes to access that would affect recreational opportunities.

Ground disturbance during construction of the Project would be limited to the minimum amount necessary to accommodate Project facilities (GEO-1), which would also help reduce restrictions or closures to recreation areas or access, to the extent practicable. In areas where public access is available, such as State-owned land that is open to the public, Project personnel would coordinate with the State land office to identify appropriate temporal and spatial access restrictions during construction and operations (PHS-11). Recreation activities, such as hunting, that would be restricted during construction would be permitted throughout O&M and decommissioning in conformance with the property lease agreements and/or land use regulations (REC-2), unless a localized temporary restriction or closure is necessary to avoid exposure to safety risks, such as during turbine repair.

Measures are incorporated into the Project design to allow continued access to recreation resources to the extent possible throughout construction, O&M, and decommissioning. Project traffic would be limited to minimize disruption of normal land use and recreation activities (REC-3). Before the start of construction, a Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize restrictions or closures to access (TRANS-1). Deliveries of Project components during construction would be scheduled outside of local traffic volume peak times to the extent feasible, thereby minimizing conflicts between Project and non-Project traffic (TRANS-2) and reducing access restrictions to recreation resources. Temporary road closures could be implemented during construction and decommissioning to allow haul trucks sole access to the road while delivering Project components; closures would be limited to 15 minutes (TRANS-3), which would minimize the disruption to access to recreation resources.

Restrictions to and closures of recreation areas and restrictions to access to recreation resources would be unavoidable throughout construction of the Project; however, these restrictions and closures would be temporary and would only occur in portions of recreation areas, thereby allowing their continued use. Coordination and planning implemented prior to and throughout construction of the Project would reduce the need for restrictions or closures during construction and avoid restrictions or closures during O&M, and decommissioning of the Project, except in cases where restrictions or closures are necessary to protect the safety of recreationists or workers. As a result, degradation of recreational opportunities would be minimized.

Issue Statement #2: Would Project-related human presence or noise cause the avoidance of big game and small game in the Project Area boundary, thereby reducing the quality of hunting opportunities?

The Project Area, plus a 1-mile buffer around the Project Area, represents the analysis area for this issue to represent the extent that the Project could affect the quality of hunting opportunities. Construction, maintenance, and decommissioning of the Project would require activities, such as blasting and the use of heavy equipment, that would produce loud noises. If big or small game are present in or near the Project Area during noise-producing activities, they could be startled and leave the area. The presence of and noise from workers throughout the life of the Project could also startle big or small game.

HMAAs, hunting WIAs, and CPW Public Access Program lands provide public and private hunting opportunities in and around the Project Area. Project-related noise in or near hunting areas could lead to avoidance by big or small game. During construction, O&M, and decommissioning, idling equipment would be turned off when not in use (AQ-5), and blasting or hydraulic hammering during construction would be limited to daylight hours (NOISE-3), thereby limiting the duration of noise. Construction vehicles and equipment would be equipped with manufacturers' standard noise control devices or better (e.g., mufflers and engine enclosures) (NOISE-1 and NOISE-2).

Worker presence would occur most often during construction and decommissioning and would be intermittent throughout O&M. Noise would occur during construction and decommissioning and throughout operation of the WTGs. During operations, infrasound, which is a low-frequency sound below the audible range of humans, could be generated by WTGs. Infrasound could lead to vibration of nearby structures that are detectable by wildlife and could lead to behavioral responses, such as avoidance of areas (Lovich and Ennen 2013), thereby degrading the quality of hunting opportunities. As summarized in section 3.4.5.3, "Proposed Action," past research and observations have demonstrated both avoidance and non-avoidance of operating energy infrastructure. It is therefore unclear if noises, including infrasound, during operations could lead to avoidance of the Project Area by big and small game.

If avoidance does occur and a species leaves a designated hunting area in the vicinity of operational infrastructure, it is anticipated that they would return to the area; therefore, the quality of hunting opportunities within the Project Area would remain similar to existing conditions.

Issue Statement #3: Would the influx of Project workers result in an exceedance of capacity of recreation resources?

The analysis area for this issue is the Project Area plus a 50-mile buffer around the Project Area. Construction of the Project is anticipated to take 20 to 32 months, during which time the average monthly workforce would be 211 to 323 workers, depending on the phasing of construction. It is anticipated that approximately 80 percent of the construction workforce would not be local and would temporarily relocate to the analysis area (a 50-mile buffer around the Project Area) during construction. Long-term operations of the Project would require 23 workers that could include a portion of nonlocal workers who would relocate to the analysis area. See section 3.12, “Social and Economic Resources (including environmental justice),” for more information on the Project workforce.

The influx of these workers and their families during construction and operations would increase demands on recreation resources within the analysis area (Project Area plus a 50-mile boundary), including the increased use of recreation areas such as those that offer hunting, fishing, and camping opportunities. Demands to recreation resources would be spread out over days and times to reflect workers’ different working schedules. In addition, there are plentiful hunting, fishing, and other recreation opportunities within the analysis area. Because of this, the increased demand by Project workers would not exceed the capacities or availabilities of recreation resources, and worker use of these resources would not prevent their use by existing or future non-Project recreationists.

Although it is assumed that a portion of workers would prefer to reside near population centers or to make arrangements with private landowners to stay near the Project Area, some workers could elect to use campgrounds for housing. There are more than 90 public and private campgrounds located throughout the analysis area. Closer to the Project Area (within approximately 10 miles), there are four campgrounds with a total of more than 200 sites. Dispersed camping is also available throughout the Cherokee SWA Middle Unit and Upper Unit, approximately 5.5 miles from the Project Area. The use of campgrounds by Project workers would be spread throughout the analysis area and would not be anticipated to overburden the capacities of available campsites. In addition, ConnectGen would coordinate with city officials in Laramie, Wyoming, and Fort Collins, Colorado, and with private campgrounds to identify facilities that are available to construction workers to avoid displacement of public recreational use at private campgrounds (REC-1). Because of this, the increased demand on campgrounds by Project workers would not exceed the capacities or availability of these recreation resources, and worker use of campgrounds would not prevent their use by existing or future non-Project recreationists.

3.11.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.

3.11.6 Recreation Resources Conclusion

The Project could temporarily restrict or close portions of recreation areas in the Project Area; however, the use of recreation areas would not be entirely precluded. Noise during Project construction, O&M, and decommissioning would be unavoidable. Based on existing research, it is not known if Project noise would lead to the avoidance of the area by big and small game. However, if avoidance occurs, once construction and decommissioning activities are complete, it is anticipated that big and small game would

return to the area; therefore, the quality of hunting opportunities are anticipated to remain similar to existing conditions. Increased demands on recreation resources from Project workers would not exceed the capacities or availability of existing recreation resources. Based on the analyses of these issues, no significant impacts would be anticipated to recreation resources.

3.12 Social and Economic Resources (including environmental justice)

This section describes social and economic resources, including environmental justice populations, and analyzes potential impacts to these resources from construction, O&M, and decommissioning of the Project.

3.12.1 Regulatory Background

The CEQ and the DOE regulations implementing NEPA require disclosure of the environmental consequences of proposed Federal actions, including the social and economic effects of those actions. EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations requires Federal agencies taking action to identify and address any disproportionately high and adverse human health or environmental effects of actions on minority and low-income populations. This section of the EIS addresses those Federal requirements.

The Wyoming Industrial Development Information and Siting Act requires wind energy projects of the scale of the Project to be reviewed and approved by the State's ISC. Albany County wind energy siting regulations (Albany County 2015) also require wind energy projects such as the Project to apply for a Wind Energy Conversion System Use Permit. As part of these application processes, the potential socioeconomic impacts must be addressed.

3.12.2 Data Sources

Social and economic data from the following sources were used in this assessment:

- U.S. Census Bureau and U.S. Bureau of Economic Analysis
- The Wyoming Department of Employment, Wyoming Department of Revenue, Wyoming Department of Workforce Services
- The Colorado Department of Labor and Employment, the Colorado State Demographic Office
- Albany County, Wyoming, and Larimer County, Colorado
- Workforce and Project cost estimates provided by the applicant
- Peer-reviewed studies of the effects of wind farms on residential property values

Data and analysis to support findings of this socioeconomic analysis are presented in the "Social and Economic Analysis Technical Report: Rail Tie Wind Project, Albany County, Wyoming" (Tetra Tech 2020k).

3.12.3 Analysis Area

The analysis area for the social and economic resources assessment is Albany County, Wyoming, and Larimer County, Colorado.

3.12.4 Baseline Description

Social and economic baseline conditions in the analysis area are described below in terms of population and demographics, employment, housing, property values, and tax revenues.

3.12.4.1 Population and Demographics

Population characteristics of the analysis area counties are summarized in table 3-29. The Project is in Albany County, approximately 16 miles south of the city of Laramie. In 2018, Albany County’s population was 38,601. Laramie is the largest community in Albany County, and the majority (84 percent) of the county’s population resides there. Laramie is the capital of Wyoming and home to the University of Wyoming, which has an enrollment of approximately 12,500 students. This suggests seasonal fluctuations in Albany County’s population and other demographic characteristics as relatively large numbers of students leave during the summer and return in the fall. Albany County’s population increased by 6.3 percent between 2010 and 2018 (Tetra Tech 2020k).

Table 3-29. Analysis Area Population

County or State	2018 Population	2020 Forecast	2030 Forecast	2040 Forecast
Albany County	38,601	39,010	41,600	42,600
Wyoming	577,737	579,280	597,260	614,820
Larimer County	350,518	359,838	422,441	480,122
Colorado	5,695,564	5,842,076	6,686,512	7,460,600

Source: Tetra Tech (2020k).

Larimer County borders Albany County. Larimer County’s 2018 population was 350,518, with nearly half the county’s population (48 percent) residing in Fort Collins. Larimer County’s population increased by 17 percent between 2010 and 2018 (Tetra Tech 2020k).

Population in both Albany and Larimer Counties is forecast to continue growing in the coming decades. Albany County’s population is forecast to be 41,600 by 2030, and Larimer County’s population is forecast to be 597,260 by 2030.

Based on 2010 U.S. Census data and the EPA’s EJSCREEN tool, 17 percent of Albany County’s population is considered minority and 40 percent is low income. Larimer County’s population is 17 percent minority and 27 percent low income. Low-income and minority population data for a 5-mile buffer around the Project, for Albany and Larimer Counties, for the states of Wyoming and Colorado, and for the Census block groups surrounding the Project are presented in table 3-30. High low-income and minority populations are those that are meaningfully greater than those for a reference jurisdiction (CEQ 1997). Using Albany County as a reference jurisdiction and the 5-mile radius as descriptive of the populations most likely to be affected, U.S. Census data show that the percentages of low-income and minority populations are lower than Albany County and, therefore, do not indicate that there are high minority or low-income populations in the immediate vicinity of the Project. Similarly, data for the Census block groups surrounding the Project indicate that low income and minority populations are lower than for the counties in which they are located.

Table 3-30. Low-Income and Minority Populations

Demographic Characteristic	5-mile Buffer	Albany County	BG 9639.2	BG 9639.1	Larimer County	BG 24.01.1	BG 25.03.1
Total population	333	37,944	1,103	873	330,976	827	3,191
Minority population ¹	9%	17%	6%	6%	17%	16%	15%
Low-income population ²	21%	40%	18%	35%	27%	28%	23%

Source: Tetra Tech (2020k).

Note: BG = Census block group.

¹ Minority population: The percent of individuals in each geographic area who list their racial status as a race other than White alone and/or list their ethnicity as Hispanic or Latino.

² Low-income population: The percent of a geographic area's population in households where the household income is less than or equal to twice the Federal poverty level.

3.12.4.2 Employment

The largest employers in Albany County include the University of Wyoming, Ivinson Memorial Hospital, and Albany County School District. In 2018, there were an estimated 24,104 people employed in Albany County. Annual unemployment in Albany County in 2018 was 3.3 percent, 0.8 percent lower than the statewide annual unemployment rate for Wyoming. In 2018, employment in Larimer County was an estimated 239,842 jobs, with the county's largest employers being Colorado State University, University of Colorado Health, the Banner Health McKee Medical Center, and Poudre School District. The annual unemployment rate in Larimer County in 2018 was 2.8 percent, 0.5 percent lower than the unemployment rate for Colorado.

3.12.4.3 Public Services

Public services include police and law enforcement, fire prevention and suppression, emergency medical responses, hospitals, and public education. Police, fire, and emergency medical response services are described in section 3.10.4.1, "Emergency Service Providers."

There is one hospital in Albany County, Ivinson Memorial Hospital in Laramie, which has 24-hour emergency room services and 99 beds. Hospitals in Larimer County include UCHealth Poudre Valley Hospital and Banner Fort Collins Medical Center in Fort Collins, and UCHealth Medical Center of the Rockies and Banner Health McKee Medical Center, both located in the city of Loveland, south of Fort Collins. In addition to major hospitals, there are four smaller healthcare facilities and clinics in Laramie that offer primary or urgent care to the general public and five such facilities in the Fort Collins area (Tetra Tech 2020k).

Albany County is served by one school district: Albany County School District #1 with 18 schools and 4,058 students in the 2019–2020 school year. Thirteen of the district's schools are in the city of Laramie. Larimer County is served by three school districts with a total of 88 schools and 47,773 students in the 2019–2020 school year (National Education Association Research 2021).

3.12.4.4 Housing and Property Values

Tables 3-31 and 3-32 present housing characteristics of the analysis area, including rental vacancy rates and units available for rent, which are indicative of housing availability on both a temporary and permanent basis and residential property values. Hotels and motels also provide temporary housing: there are 1,402 rooms in Albany County (all located in Laramie). Vacancy rates for these rooms vary seasonally, with lowest vacancy in the summer months and highest vacancy in the winter. In addition, there are more than 2,400 rooms in the Fort Collins area of Larimer County. Recreational vehicle parks or campgrounds could also serve temporary housing needs in the analysis area; there is one RV

park/campground in Laramie and five in the Fort Collins area (Tetra Tech 2020k). See section 3.11, “Recreation Resources,” for more information on RV parks and campgrounds.

Table 3-31. Housing Characteristics of Analysis Area

County or State	Total Housing Units	Rental Housing Vacancy Rate	Total Units Available for Rent
Albany County	19,048	8.2	740
Larimer County	142,642	3.0	1,427

Source: U.S. Census Bureau (2019a, 2019b).

The median value of owner-occupied housing in Albany and Larimer Counties and the four Census block groups located within 5 miles of the Project are presented in table 3-32.

Table 3-32. Median Value of Owner-Occupied Housing

--	Albany County	BG 9639.2	BG 9639.1	Larimer County	BG 24.01.1	BG 25.03.1
Median value	226,900	293,200	197,000	336,200	341,300	416,300

Source: U.S. Census Bureau (2020).

Note: BG = Census block group.

3.12.4.5 Tax Revenues

Sales and use taxes generated approximately \$35.1 million in revenues in Albany County in 2019, with sales tax accounting for the larger share (90 percent) of this total. These totals include the State levy of 4 percent and the additional county levy of 2 percent. Sales and use tax revenues are shared between the State (69 percent) and counties (31 percent). In 2019, approximately \$19 million in sales and use tax revenue were distributed to Albany County (\$11.8 million from the 2 percent county tax and \$7.2 million from the county’s share of the State sales and use taxes). Property tax revenue in Albany County was \$32.9 million. (Tetra Tech 2020k). Sales tax revenues in Larimer County in 2018 were \$29.4 million (Larimer County 2018), and property tax revenues were \$120.1 million (Larimer County 2018).

Wyoming collects an excise tax of \$1 per MW hour of wind energy generated beginning 3 years after a turbine begins generating electricity. Revenue collected from this excise tax is distributed between the State and county where the turbines are located, with 40 percent going to the State general fund and 60 percent going to the county (Tetra Tech 2020k).

3.12.5 Impacts to Resource

This section describes potential impacts to social and economic resources (including environmental justice) associated with construction, O&M, and decommissioning of the Project.

3.12.5.1 Impact Indicators

For the purposes of this analysis, an impact to socioeconomics (including environmental justice) could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- An increase in property and other taxes related to the Project would result in an increase to public revenue.
- Noise and visual effects on residential properties in the proximity of the Project would result in a change in residential property values.
- The projected amount of temporary housing for construction workers exceeds the availability of housing units and vacancy rates, exceeding the capacity of public services.

- An increase in local sales tax revenues related to the Project would result in an increase to public revenue.
- There are disproportionately high and adverse environmental or human health effects on high low-income or minority populations.

3.12.5.2 Method of Analysis

The following steps were completed to analyze potential impacts to social and economic resources (including environmental justice):

- Demographic data were reviewed to determine if high low-income or minority populations are present in the analysis area; potential impacts to these populations were qualitatively assessed.
- Projected construction employment forecasts were compared to available housing and vacancy rates in the analysis area. Existing law enforcement, healthcare, water and sewer utilities, and education services were identified, and local government agencies were consulted. The anticipated number of Project workers were analyzed to estimate the number of nonlocal workers that would relocate to the analysis area and would thereby increase demands on resources. These increased demands were compared to existing capacities of public services to identify any potential for capacities to be exceeded or to prevent of their use by non-Project residents.
- Sales tax revenue from workforce expenditures and material purchases during construction were identified and compared to existing sales tax revenue to qualitatively characterize the difference.
- Current, applicable literature was reviewed to determine how the Project would affect residential property.
- Public revenue from property and other taxes related to the Project were identified and compared to existing public revenue to quantify the difference.
- Current, applicable literature of the cost of wind energy and other energy sources were reviewed to evaluate the cost of wind power compared to other generating sources.

3.12.5.3 Action Alternative

Issue Statement #1: Would the Project's construction and operations result in a substantial short-term or long-term change (increase or decrease) in property values?

Concerns about the potential effects of the Project on surrounding residential property values were raised during scoping. Several detailed, peer-reviewed economic studies have been conducted to address the potential impact of wind projects on residential property values, including recent studies that have addressed impacts in rural settings in the United States (Tetra Tech 2020k).

Detailed peer-reviewed studies that have used robust price models and large sample sizes (Hoen et al. 2009; Hoen et al. 2011; Hoen et al. 2013; Magnusson and Gittell 2012) did not find statistical evidence that wind projects had substantial impacts to property values. "The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis" (Hoen et al. 2009) evaluated 7,459 single-family home sales within 10 miles of existing wind facilities with respect to stigmas about wind facilities' effects on property values—specifically related to aesthetics, proximity, and perceived nuisance. The study concluded that "no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities. Although the analysis cannot dismiss the possibility that

individual or small numbers of homes have been or could be negatively impacted, if these impacts do exist, they are either too small and/or too infrequent to result in any widespread and consistent statistically observable impact” (Hoen et al. 2009).

“A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States” (Hoen et al. 2013) used data collected from more than 50,000 home sales from within 10 miles of 67 wind facilities in nine states, and included a substantially larger sample size of homes within 1 mile of facilities than Hoen et al. 2009. Data used in the study were from well before the announcement of wind facilities to well after their construction to assess how announcement of, as well as construction and operation of, wind facilities affected residential property values. The study found “. . . no statistical evidence that home prices near wind turbines were affected in either the post-construction or post-announcement/pre-construction periods” and that values of homes within a wind facility could be higher or lower than without the presence of the wind facilities (Hoen et al. 2013).

“Wind Farm Announcements and Rural Home Prices: Maxwell Ranch and Rural Northern Colorado” (Laposa and Mueller 2010) analyzed the effect of the announcement of a large wind energy project on rural housing prices in Larimer County, Colorado. The Maxwell Ranch project was initially announced in March 2007 at the beginning of substantial national and regional housing price declines. Using data from 2,910 single-family home transactions before and after the wind farm announcement and adjusting for the economic recession, the study concluded that the wind farm announcement had “insignificant and minimal impacts to surrounding home values and sales” (Laposa and Mueller 2010), as well as noting that the wind farm was one of multiple variables affecting home sales prices.

The DOE, citing Hoen et al. (2009), noted “[t]he analysis finds that if property value impacts [from wind energy projects] exist, they are too small and/or too infrequent to result in any widespread, statistically observable impact, although the possibility that individual homes or small numbers of homes have been or could be negatively impacted cannot be dismissed” (DOE 2020).

The Project would not be expected to materially decrease the property values for nearby homes; relevant studies of the effects of wind facilities on residential property values have shown small increases and decreases that are not statistically significant related to the announcement or presence of wind facilities, and that any predicted or observed changes are influenced by other multiple factors.

Issue Statement #2: How much would the Project change (increase or decrease) public revenues from property, excise production, and excise sales taxes?

The Project would generate an estimated \$4.6 million in ad valorem (or property) taxes in its first year of operations. This estimated total would be equivalent to approximately 14 percent of the total property tax revenues generated in Albany County in 2019. Property taxes would decrease over a 20-year depreciation period, after which it would retain 20 percent of its original value. As such, the Project would generate an annual average of approximately \$2 million in property tax revenues, which is approximately 6 percent of annual 2019 Albany County property tax revenues (Tetra Tech 2020k). Further, Project operations would yield annual excise tax revenue of approximately \$2 million on electrical generation beginning 3 years after the Project first begins generating electricity; 60 percent of those revenues, or approximately \$1.2 million, would be distributed to Albany County. In summary, combined tax revenues from Project operations would provide a substantial increase in both Albany County and Wyoming tax revenues.

Issue Statement #3: Would population changes during construction (“construction employment”) exceed the capacity of temporary or permanent housing or the capacity of public services available in the analysis area?

Population and Employment

The population in the analysis area would be affected by workers coming to the area during construction. Project construction would take between 20 and 32 months, depending on phasing; the shorter construction period would be if the entire Project is completed in one stage, and the longer time frame would be if it is completed in two stages. Based on Project design and review of similar wind energy projects, the peak monthly workforce under either scenario would be 500 workers; the average monthly workforce would be 323 workers under the one-stage scenario and 211 workers under the two-stage, 32-month scenario (Tetra Tech 2020k). The scenario with the larger estimated peak monthly workforce was used for this assessment. Also, based on similar Wyoming wind energy projects, 80 percent of the construction workforce is assumed to be from outside the analysis area (nonlocal) and would temporarily relocate to the analysis area during construction. Further, assuming 5 percent of the nonlocal workforce (20 workers) move their families temporarily to the area, and based on 3.14 people per family with 0.87 persons per family under the age of 18 (U.S. Census Bureau 2019c), 43 additional people and 17 people under age 18 would temporarily relocate to Albany and Larimer Counties. Based on these assumptions, peak monthly total of population change from nonlocal workers and family members would be 443 people, and the average monthly population change during construction would be 286 people (Tetra Tech 2020k).

Assuming that 80 percent of the population during the peak month of construction employment (i.e., 400 people) temporarily locate in Albany County, it would represent approximately 1 percent of estimated 2020 population of the county for the construction period.

Following construction, Project operations would directly employ 23 workers, who could be residents or people who relocate to the area (Tetra Tech 2020k).

Public Services

Temporary population increases during construction would represent a very small change in the overall population served by law enforcement and fire and emergency response services and would not adversely impact the provision of those services. Effects of construction and operations of the Project on emergency response services is discussed in section 3.10, “Public Health and Safety.”

Temporary and permanent population changes (described above) are small and would not adversely impact healthcare facilities or services in Albany and Larimer Counties. Similarly, school-aged children would represent a very small portion of temporary and permanent population changes and would not adversely impact public schools in Albany and Larimer Counties. As noted above, based on the assumption that 5 percent of relocating workers moved their families, there would be approximately 17 persons under age 18 that would move to the area.

Housing

During construction, the average monthly workforce of 323 and a peak monthly workforce of 400 nonlocal workers would seek housing or lodging in Albany and Larimer Counties. Hotels, motels, rental housing, RV parks and campgrounds, and other housing or lodging options (such as Airbnb) would serve the housing and lodging needs of the workforce; it is likely that some workers would share units, thus reducing the total number of units needed to house workers. There are more than 2,800 hotel and motel rooms and approximately 2,167 vacant rental units in the analysis area (section 3.12.4.4, “Housing and

Property Values”), which would accommodate the temporary housing needs of nonlocal workers. Neither temporary population increase during construction nor population change caused by permanent employment (23 workers) would adversely impact housing availability in the analysis area.

Issue Statement #4: Would temporary tax revenues caused by Project construction substantially change local sales tax revenues during the construction period?

The Project construction would generate sales and use tax revenues from expenditures on construction materials, equipment, and supplies. Purchases made in Wyoming and subject to sales tax are expected to include concrete, rebar, electrical equipment, and cabling. Wyoming and Albany County also impose a use tax on items purchased outside the State, which would include equipment such as wind turbines, blades, and towers. A total of \$27 million in sales and use taxes are expected to be collected by Wyoming and Albany County during construction of the Project (Tetra Tech 2020k). Local Albany County sales tax and the portion of State sales tax revenue distributed to Albany County during construction would be approximately \$14.6 million. Sales and use taxes represent a one-time revenue source during construction but would substantially increase State and local tax revenues during that time.

Sales taxes would be collected on purchases of goods and services during Project operations. Approximately \$300,000 in annual sales tax revenues would be expected to be paid to Albany County during Project operations (Tetra Tech 2020k).

Issue Statement #5: Are there low-income or minority populations in the analysis area that would be potentially disproportionately impacted by adverse effects of the Project?

Census data provided through the EPA’s EJSCREEN tool indicate that the low-income and minority population characteristics of the 5-mile buffer around the Project, and the Census block groups surrounding the Project, have low-income and minority population percentages below those reported for Albany County as a whole. Construction and operations impacts identified in this EIS do not indicate that the Project is expected to have high and adverse environmental or human health effects that are disproportionately borne by low-income or minority populations.

3.12.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing social and economic conditions and trends would continue. Population, employment, public services, housing, property values, and tax revenues in the analysis area would continue to be influenced by local, regional, national, and, in some aspects, global economic and social influences.

3.12.6 Social and Economic Resources (including environmental justice) Conclusion

The temporary population increase during construction is estimated to be approximately 1 percent of the current population of Albany County, and it would not result in a demand for housing or public services that could not be met by existing housing and capacity of public services. Construction and operations of the Project would provide increases in State and local tax revenues. The Project would not be expected to materially decrease the property values for nearby homes; detailed, peer-reviewed studies of the effects of

wind facilities on residential property values have shown small increases and decreases that are not statistically significant related to the announcement or presence of wind facilities, and that any predicted or observed changes are influenced by other multiple factors.

Analysis of U.S. Census data do not indicate that there are high minority or low-income populations in the immediate vicinity of the Project. Based on the analysis of these issues, no significant adverse socioeconomic impacts would be anticipated from the Project, including impacts to environmental justice populations.

3.13 Transportation and Access

This section describes existing transportation infrastructure resources and analyzes potential impacts to those resources from construction, O&M, and decommissioning of the Project. Transportation infrastructure resources considered include roadways, railroads, and airports, and radar-dependent transportation operations such as air travel and satellites.

3.13.1 Regulatory Background

The following Federal, State, and local regulations establish requirements, standards, and guidelines for the development, alteration, use, and management of transportation infrastructure resources and are applicable to the Project:

- Manual on Uniform Traffic Control Devices (23 CFR 655.603) establishes standards for traffic control devices, including temporary signage during construction and permanent signage on roadways.
- WYDOT Traffic Studies Manual (WYDOT 2011) provides guidelines for conducting engineering studies on roads under the jurisdiction of WYDOT.

In addition, the following transportation-related approvals or authorizations would be required for the Project:

- A Road Use Agreement is required by WYDOT prior to the use of State roads by Project traffic and requires applicants to be financially responsible for State road repairs and maintenance as determined by WYDOT.
- An Access Permit is required by WYDOT for any widening or building of an approach from land joined to a State highway ROW and requires applicants to be responsible for construction, maintenance, and removal (if necessary) of the approach.
- An Approach License is required by Albany County Road and Bridge Development for building an approach from land joined to a county road ROW and requires applicants to be responsible for construction, maintenance, and removal (if necessary) of the approach.
- A Road Improvement and Maintenance Agreement is required by Albany County Road and Bridge Department for use of county roads by the Project and could include requirements for road improvements and/or maintenance as deemed necessary.

Additional information on the transportation regulatory background applicable to the Project and other general permit requirements are included in the “Rail Tie Wind Project Transportation Analysis Technical Report” (Tetra Tech 20201).

3.13.2 Data Sources

Data sources used to characterize existing (i.e., baseline) conditions and analyze potential impacts to transportation infrastructure resources from the Project include the following:

- Aerial imagery via Google Earth

A Traffic and Transportation Analysis was completed to evaluate potential impacts to transportation infrastructure resources. This analysis, the methods, assumptions, and results for which are described in the “Rail Tie Wind Project Transportation Analysis Technical Report” (Tetra Tech 2020), identified existing transportation infrastructure resources that could be affected by the Project and informs the analysis of potential impacts to these resources from the Project. The analysis also summarizes existing local traffic data and provides calculated estimates for Project-related construction, operations, and decommissioning traffic and access routes.

3.13.3 Analysis Areas

The following analysis areas have been identified to evaluate the extent to which potential impacts from the Project could occur on transportation resources and conditions:

- Roadway traffic volumes and conditions, including access: This analysis area includes transportation facilities within and immediately surrounding the Project Area and major State highways connecting to interstates in Albany County, Laramie County, and Larimer County. This analysis area captures potential routes and roadway networks near the Project Area that could be used during construction, O&M, and decommissioning of the Project for delivery of Project components to the Project Area and worker commutes.
- Railroad capacity: This analysis area includes railroads and rail yards within and immediately surrounding the Project Area and railroads near major State highways to capture all potential rail routes and infrastructure that could be used to deliver Project components to the Project Area.
- Traffic patterns: This analysis area includes transportation facilities within and immediately surrounding the Project Area and major interstates and highways in Albany County and Laramie County to capture the extent of Project-related traffic and changes to transportation resources and infrastructure as a result of the Project.
- Aviation and radar-dependent transportation operations: This analysis area includes the Project Area, which captures the extent that Project activities or infrastructure could conflict with existing airport land use plans or interfere with radar-dependent transportation operations.

3.13.4 Baseline Description

The following summarizes existing transportation infrastructure resources and conditions within the analysis area. Transportation resources are shown in figure 3-16. Additional details on these transportation infrastructure resources and conditions are provided in the “Rail Tie Wind Project Transportation Analysis Technical Report” (Tetra Tech 2020).

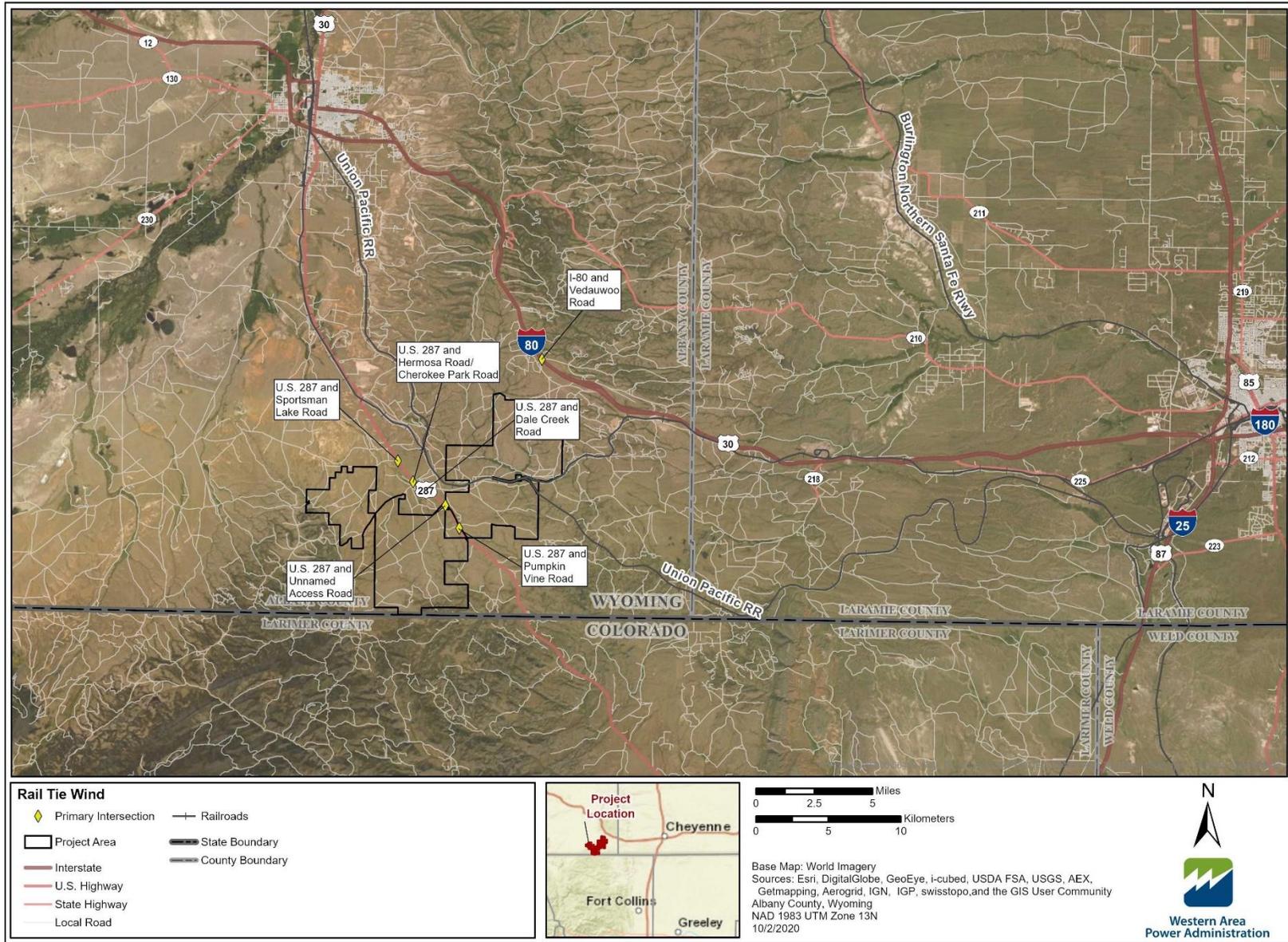


Figure 3-16. Transportation.

3.13.4.1 Roadways

Table 3-33 summarizes interstate highways and State highways within the analysis area.

Table 3-33. Interstate and State Highways within the Project Analysis Area

Interstate (I) Highway/State Highway	Extent	Infrastructure	Planned Upgrades	Speed Limit
I-80	New Jersey to San Francisco, California, via Cheyenne and Laramie, Wyoming	Four-lane divided freeway with grade-separated interchanges	Full replacement of the I-25/I-80 interchange (WYDOT 2020a); widening and the addition of trucking climbing/passing lanes and truck parking (WYDOT 2018); multiple bridge replacements and infrastructure upgrades and repairs (WYDOT 2020b)	80 mph
I-25	New Mexico to Buffalo, Wyoming	Four-lane divided freeway with grade separated interchanges	Full replacement of the I-25/I-80 interchange and a full replacement of the I-25/Lincolnway Interchange (WYDOT 2020a); multiple bridge replacements and infrastructure upgrades and repairs (WYDOT 2020b); reconstruction of the Colorado portion of the mainline to correct geometric deficiencies and replace aging infrastructure (CDOT 2020)	75 mph (55–65 mph through major cities)
U.S. 287	Laramie, Wyoming, to the north and Fort Collins, Colorado, to the south	Principal arterial, four-lane divided highway in the Project Area, two-lane highway on other stretches of analysis area	Restriped in 2019; multiple bridge and guard rail replacements and infrastructure upgrades and repairs (WYDOT 2020b)	70 mph

Source: Aerial Imagery on Google Earth, CDOT (2020); Tetra Tech (2020), WYDOT (2018, 2020a, 2020b).

Local county roadways (CR) within the analysis area include Cherokee Park Road (CR 31), Hermosa Road (CR 222), Monument Road (CR 234), Pumpkin Vine Road (CR 241), Sportsman Lake Road (CR 316), and Boulder Ridge Road (CR 319). Dale Creek Road is a private road (formerly CR 231) located within the analysis area. Various smaller, unpaved public and private roads are also located in the analysis area.

There are no Military Training Routes within the Project Area (Military Aviation and Installation Assurance Siting Clearinghouse 2019). The closet Military Training Route to the Project Area traverses almost 50 miles to the west and east and more than 50 miles to the north of the Project Area.

3.13.4.2 Intersections

Table 3-34 summarizes primary intersections within the analysis area.

Table 3-34. Primary Intersections within the Project Analysis Area

Intersection	Location	Description	Infrastructure
U.S. 287 and Sportsman Lake Road (CR 316)	Approximately 1.1 miles northwest of Tie Siding, Wyoming, near the northwestern portion of the Project Area	Sportsman Lake Road is a gravel road that proceeds west from the intersection at U.S. 287.	Dedicated turn lanes from U.S. 287 onto Sportsman Lake Road; no acceleration lanes for merging vehicles
U.S. 287 and Hermosa Road (CR 222)/ Cherokee Park Road (CR 31)	Center of the Project Area	Hermosa Road is a gravel road that proceeds east from the intersection at U.S. 287 and connects to Monument Road to provide access to I-80 via Vedauwo Road. Cherokee Park Road is a gravel road that proceeds west from the intersection at U.S. 287 and connects to Boulder Ridge Road.	At-grade railroad crossing on Hermosa Road approximately 1-mile east of U.S. 287; dedicated turn lanes from U.S. 287; no acceleration lanes for merging vehicles

Intersection	Location	Description	Infrastructure
U.S. 287 and Dale Creek Road (formerly CR 231)	Approximately 0.7 mile southeast of Tie Siding, Wyoming	Dale Creek Road is a private, unpaved road that forms a T-intersection with U.S. 287 and generally runs parallel to the UPRR.	Connection to an above-grade railroad crossing; dedicated turn/deceleration lanes for both directions accessing Dale Creek Road
U.S. 287 and Unnamed Access Road	West side of U.S. 287 at the center of the Project Area	Unnamed paved turn-off of U.S. 287 privately owned through a cell tower easement.	Paved turn-off travels approximately 100 feet before transitioning to a two-track road providing access to an existing cell tower; no dedicated turn lanes, although existing pavement width would accommodate turn lane striping
U.S. 287 and Pumpkin Vine Road (CR 241)	Approximately 3.0 miles southeast of Tie Siding, Wyoming	Pumpkin Vine Road is an unpaved road that forms a T intersection with the minor, northeast leg of U.S. 287	Dedicated southbound (left-turning) lane; no dedicated northbound (right-turning) lane
I-80 and Vedauwoo Road (Exit 329)	Approximately 1.0 mile northeast of the Project Area	Vedauwoo Road is Exit 329 off I-80 that intersects Monument Road immediately west of the interchange and thereby provides an interconnection with Dale Creek Road and Hermosa Road.	Low-volume, grade separated exit

Source: Aerial Imagery on Google Earth and Tetra Tech (2020).

3.13.4.3 Traffic Volumes

Tables 3-35 and 3-36 summarize estimated traffic volumes for 2021, representing commencement of Project construction, and existing traffic conditions (peak hour level of service [LOS]) for interstate highways, State highways, and primary intersections within the analysis area. Traffic data are not collected on county or private roads, but comparative traffic volumes on these roads are typically extremely light.

Table 3-35. Estimated Traffic Volumes and Baseline Level of Service for Highways within the Transportation Analysis Area

Interstate (I) Highway/ State Highway	Traffic Monitoring Location	Percent Trucks	Annual Average Daily Traffic (2021)	Commute Peak Hour	Peak Hour Volume (2021)	Peak Hour Density (peak count per mile per lane)	Peak Hour LOS
I-80	East of Laramie, Wyoming	47%	13,918	10 a.m.–1 p.m.	1,112	5.9	A
I-25	South of Cheyenne, Wyoming	15%	22,682	Unknown	2,268	10.0	A
U.S. 287	Near Tie Siding, Wyoming	17%	4,676	11 a.m.–2 p.m.	368	2.0	A

Sources: WYDOT (2020b); Tetra Tech (2020).

Table 3-36. Estimated Traffic Volumes and Baseline Level of Service for Primary Intersections within the Transportation Analysis Area

Intersection	Percent Trucks	Annual Average Daily Traffic (2021)	Commute Peak Hour	Peak Hour Volume (2021)	Peak Hour Delay (seconds)	Peak Hour LOS
U.S. 287 and Sportsman Lake Road (CR 316)	15%	4,686	11 a.m.–2 p.m.	376	10.5	B
U.S. 287 and Cherokee Park Road (CR 31)/ Hermosa Road (CR 222)	15%	4,736	11 a.m.–2 p.m.	379	10.4	B

Intersection	Percent Trucks	Annual Average Daily Traffic (2021)	Commute Peak Hour	Peak Hour Volume (2021)	Peak Hour Delay (seconds)	Peak Hour LOS
U.S. 287 and Dale Creek Road	15%	4,686	11 a.m.–2 p.m.	371	9.4	A
U.S. 287 and Unnamed Access Road	15%	4,676	11 a.m.–2 p.m.	368	NA ²	A
U.S. 287 and Pumpkin Vine Road (CR 241)	15%	4,686	11 a.m.–2 p.m.	373	9.4	A
I-80 and Vedauwoo Road exit	NA ¹	40	10 a.m.–1 p.m.	N/A ¹	NA ¹	NA ¹

Sources: Tetra Tech (2020); WYDOT (2020b)

Note: N/A = no data available.

¹ Vedauwoo Road is a grade-separated intersection at I-80. No data are available, but traffic counts on Vedauwoo Road are expected to be minimal, and traffic using this intersection would not affect traffic on I-80. This intersection could require radii modifications but is not of concern for LOS.

² Peak hour delay for this intersection is not available. It is assumed that vehicle use is currently so seldom that on average 0 vehicles use it during peak hour.

Traffic volumes along I-80, I-25, and U.S. 287 are typically higher on weekends than on weekdays and higher in the summer than in the winter. Traffic along each of these roadways is approximately even between opposite-direction travel lanes. Peak hour times are different for I-80 and U.S. 287, generally occurring between 11 a.m. and 2 p.m. and 10 a.m. and 1 p.m., respectively; peak hour times for intersections are similar. Peak hour times are not available for the I-25 station used for this analysis. Truck traffic volumes are highest along I-80 (47 percent) compared to I-25 (15 percent) and U.S. 287 (17 percent). Annual average daily traffic (AADT), peak hour volume (PHV), and peak hour density are highest along I-25 and lowest along U.S. 287. AADT is similar among the primary intersections, with AADT ranging from 4,676 to 4,736, except for I-80 and the Vedauwoo Road exit, which has an AADT of 40. PHV and peak hour delay are similar among intersections, where data are available. The peak hour LOS for all three highways and three of the intersections is rated A (peak hour delay of 0–10 seconds), with the remaining two intersections rated B (peak hour delay of 10–15 seconds); peak hour data are not available for the I-80 and Vedauwoo Road exit intersection.

3.13.4.4 Rail

The UPRR runs south through the central portion of the analysis area to just east of Tie Siding, Wyoming, where two lines then run northeast and southeast through the eastern portion of the Project Area. In 2015, WYDOT reported an average of 65 to 75 trains per day for the east-west Laramie Subdivision, which is the portion of the UPRR that runs between Cheyenne and Rawlins and includes the portion of the UPRR that runs through the Project Area (WYDOT 2015). WYDOT reported an average of 30 trains per day along this portion of the UPRR in 2009, which is the last year for which data are reported (WYDOT 2015). An approximately 1,200-foot-long siding, located alongside an unnamed dirt road, south of Hermosa Road and north of Hermosa Road, just to the west of the Project Area near Hermosa. This siding is associated with the UPRR. A UPRR rail yard is in Laramie and includes existing infrastructure for delivering and offloading large Project components.

At-grade railroad crossings occur along some of the local roads within the analysis area, including on Hermosa Road approximately 1 mile east of U.S. 287 near Tie Siding and in the north-central portion of the Project Area; Monument Road just north of the intersection with Dale Creek Road in the eastern portion of the portion area; and Stevenson Road approximately 2 miles east of U.S. 287 and northwest of the Project Area.

3.13.4.5 Aviation and Other Radar-Dependent Operations

There are no airports in the analysis area. The Laramie Regional Airport is approximately 12 miles northwest of the Project Area. The airport's master plan does not define the analysis area as part of its planning areas, use areas, or airspace (Laramie Regional Airport 2010). The Rock and Hard Place Ranch Airport is a private airport located approximately 7 miles north of the Project Area. No airport master plan exists for the Rock and Hard Place Ranch Airport.

3.13.5 Impacts to Resource

This section describes potential impacts to transportation and access associated with construction, O&M, and decommissioning of the Project.

3.13.5.1 Impact Indicators

For the purposes of this analysis, an impact to transportation or access could result if any of the following were to occur from construction, O&M, or decommissioning of the Project:

- Traffic delays on roadways that would lead to degradation of LOS; contributions of traffic at primary intersections that would lead to degradation of LOS.
- Damage to transportation resources.
- Changes or restrictions to public access.
- Changes to existing traffic patterns during construction that would result in hazardous conditions.
- Exceedance in the capacity of existing railroads in terms of availability to deliver Project components; exceedance in the capacity of existing railroads in terms of equipment and infrastructure capable of delivering Project components.
- Conflict with aviation operations, airport land use plans, or radar-dependent operations.

3.13.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to transportation and access:

- Roadways within and around the Project Area were identified to determine potential Project routes for the delivery of equipment, components, or materials or for worker travel. Peak construction traffic volumes were used to capture the highest-possible potential volumes for Project-related traffic during construction. The year of projected decommissioning, which would begin following the 35-year operations period, was used to capture the highest-possible potential volumes for Project-related traffic during decommissioning.
- Existing AADT volumes were obtained from measuring locations, and future non-Project-related traffic volumes were estimated using AADT data and changes over time, in addition to information provided in county and local transportation plans. Non-Project and Project-related traffic and transportation routes were analyzed using Highway Capacity Software to determine if existing LOS thresholds would be changed due to Project-related traffic. This information was also used to inform a qualitative evaluation of potential changes to LOS at key intersections.
- Project-related needs for transportation resources or infrastructure were evaluated to qualitatively identify any changes to existing access and traffic patterns.

- Existing railroad corridors and rail yards in and around the Project Area were gathered using available maps. Services and capabilities of railroads were identified through Federal Railroad Administration and WYDOT data. This information was used to determine which railroads and rail services would have the capability and capacity to deliver Project equipment and components.
- Applicable airport land use plans were gathered to identify air space boundaries and restricted areas and determine any overlap with the Project Area. Existing literature and past NEPA documents were reviewed to characterize past coordination on restrictions to wind projects for avoiding interference or conflict with satellite and radar operations.

This analysis includes the following assumptions:

- Project vehicle routes would come from multiple locations and would be spread out until vehicles get closer to the Project Area, where traffic would be combined onto a few roads and intersections.
- The 1,200-foot-long UPRR siding near Hermosa would be too small for parking and offloading Project-sized components and would, therefore, not be used or affected by the Project. As a result, this resource is eliminated from further analysis.
- There is no airport master plan for the Rock and Hard Place Ranch Airport. Based on the distance of the Rock and Hard Place Ranch Airport from the Project Area and based on existing land use planning areas of a nearby larger airport, the Laramie Regional Airport, it is assumed the Project Area would be outside of the land use planning areas for the Rock and Hard Place Ranch Airport.
- ConnectGen submitted Form 7460-1 Filings for a preliminary turbine layout to the FAA in October 2019. The FAA issued Determinations of No Hazard for the entire turbine layout in April 2020. The filed turbine layout included 151 turbines that were 679 feet in height, so the final turbine layout would be less in height and number of turbines and can therefore be assumed to also receive No Hazard Determinations.
- Consultations for a wind energy project evaluated in 2012 concluded that although the Project would be visible in the lowest scan angle of the local radar, the impacts would be low and not significant enough to require mitigation (WAPA 2012). Because of the Project's similarities with this wind energy project, it is assumed that the Project's impacts to radar-dependent operations would also not warrant detailed analysis. Therefore, this topic is eliminated from further analysis.

3.13.5.3 Proposed Action

Issue Statement #1: How would the Project affect roadway traffic volumes and conditions?

The analysis area for this issue includes transportation facilities in and immediately surrounding the Project Area and major State highways connecting to interstates in Albany, Laramie, and Larimer Counties (section 3.13.3, "Analysis Areas"). Construction-related vehicles, including trucks carrying equipment and Project components and vehicles used by construction personnel to access the site from lodging/residences, would temporarily contribute to existing traffic volumes. There would be an estimated 250 vehicles per day at peak construction.

The Project would be constructed and operated in compliance with applicable zoning, siting, and environmental regulations (GEN-1), which include implementation of appropriate transportation planning and traffic controls. Project-related travel during construction would be restricted to routes identified in the Project Site Plan (GEN-3). No equipment or vehicles would be parked on roads maintained by Albany County (TRANS-7). A Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries,

traffic, and circulation in and around the Project Area and minimize traffic delays (TRANS-1). Deliveries of Project components during construction would be scheduled outside of local traffic volume peak times to the extent feasible, thereby minimizing conflicts between Project and non-Project traffic (TRANS-2). Deliveries would be made by professional transportation companies familiar with the type of equipment, loads involved, and U.S. Department of Transportation, WYDOT, and Albany County regulations (TRANS-8). Construction deliveries would be coordinated to avoid major traffic-generating events in Laramie, including events held on the University of Wyoming campus, to the extent practicable (TRANS-5). The Project would coordinate with local law enforcement to manage traffic flows and monitor traffic speed during deliveries (TRANS 4 and TRANS-6). If temporary closures are necessary to allow haul trucks sole access to the road while delivering Project components, closures are not expected to exceed 15 minutes during each closure event (TRANS-3). Signage would be placed near construction areas in accordance with the ACZR and in coordination with Albany County Road and Bridge Department and WYDOT to notify travelers and local residents about construction and the timing and routes for oversized vehicle movements and deliveries (TRANS-9).

Despite the implementation of transportation planning and traffic controls, the number of vehicle trips to accommodate deliveries and workers to and from the Project Area would contribute to changes in traffic volumes. Haul routes used during construction, including I-80, I-25, and U.S. 287 would see approximately 1.5 percent, 0.5 percent, and 15 percent increases, respectively, in AADT; 4.5 percent, 0.5 percent, and 48 percent increases, respectively, in PHV; and increases of 0.3, 0.1, and 0.2, respectively, in peak hour density (i.e., peak count per mile per lane) (table 3-37). There would be no change due to Project construction in the percent trucks, commute peak hour, or LOS for these routes.

Table 3-37. Estimated Traffic Volumes and Level of Service for Haul Routes used during Peak Construction

Interstate Highway/State Highway	Traffic Monitoring Location	Percent Trucks	AADT (2021)	Commute Peak Hour	PHV (2021)	Peak Hour Density (peak count per mile per lane)	Peak Hour LOS
I-80	East of Laramie, Wyoming	47%	14,120	10 a.m.–1 p.m.	1,162	6.2	A
I-25	South of Cheyenne, Wyoming	15%	22,782	Unknown	2,278	10.1	A
U.S. 287	Near Tie Siding, Wyoming	17%	5,376	11 a.m.–2 p.m.	543	2.2	A

Sources: Tetra Tech (2020).

Decommissioning would contribute to the same vehicles per day as construction, although over a shorter time period. Because of this, there would be no change because of Project decommissioning in the LOS for haul routes. O&M activities, which would occur over a longer time frame than construction and decommissioning, would contribute to an estimated 20 vehicles per day. Compared to construction and decommissioning, the changes in traffic along haul routes during O&M would be negligible. Because of this, Project-related traffic along haul routes during construction, O&M, and decommissioning would not result in the degradation of LOS.

Primary intersections used to access the Project Area would experience changes in traffic volumes during construction (table 3-38). The U.S. 287 and Sportsman Lake Road (CR 316) intersection would see an approximate increase of 0.2 percent in AADT, a 47 percent increase in PHV, and a decrease of 1.2 seconds in peak hour delay. When considering overall changes to traffic coming from left and right turns at this intersection, there would be an improvement to LOS from B to A; however, this improvement is

only applicable to right-turning vehicles (southbound onto U.S. 287) because of a number of factors: multiple turn movements sharing a lane (eastbound left turn and right turn onto U.S. 287); assumption that most Project vehicles would be making a right turn (southbound onto U.S. 287) at this intersection; and right turns having a higher capacity than left turns, therefore, resulting in an increase in average capacity and a decrease in average delay. Left-turning vehicles (i.e., northbound onto U.S. 287) would still experience a delay similar to baseline conditions (LOS B, or a peak hour delay of 10–15 seconds). The other primary intersections, except for I-80 and Vedauwoo Road, which is a grade-separated intersection and would not be affected by traffic along I-80, would see some increase in PHV and peak hour delay; however, only the LOS of the U.S. 287 and Dale Creek Road and U.S. 287 and Unnamed Access Road would experience a degradation in the LOS from A to B.

Table 3-38. Estimated Traffic Volumes and Level of Service for Primary Intersections used during Peak Construction

Intersection	Percent Trucks	AADT (2021)	Commute Peak Hour	PHV (2021)	Peak Hour Delay (seconds)	Peak Hour LOS
U.S. 287 and Sportsman Lake Road (CR 316)	15%	4,696	11 a.m.–2 p.m.	551	9.3	A
U.S. 287 and Cherokee Park Road (CR 31)/ Hermosa Road (CR 222)	15%	4,736	11 a.m.–2 p.m.	554	11.6	B
U.S. 287 and Dale Creek Road	15%	4,686	11 a.m.–2 p.m.	546	10.8	B
U.S. 287 and Unnamed Access Road	15%	4,676	11 a.m.–2 p.m.	558	11.4	B
U.S. 287 and Pumpkin Vine Road (CR 241)	15%	4,686	11 a.m.–2 p.m.	546	9.9	A
I-80 and Vedauwoo Road exit	NA ¹	215	10 a.m.–1 p.m.	N/A ¹	N/A ¹	N/A ¹

Sources: Tetra Tech (2020)

Note: N/A = no data available.

¹ Vedauwoo Road is a grade-separated intersection at I-80. No data are available, but traffic counts on Vedauwoo Road are expected to be minimal, and traffic using this intersection would not affect traffic on I-80. This intersection could require radii modifications but is not of concern for LOS.

Primary intersections used to access the Project Area would also experience changes in traffic volumes during decommissioning (table 3-39). As described for construction, the overall LOS improvement shown for U.S. 287 and Sportsman Lake Road (CR 316) is because of the higher capacity right turns (southbound turn onto U.S. 287) experiencing an improvement; left turns (northbound onto U.S. Highway 298) would experience delays during decommissioning similar to existing conditions (LOS B, or a peak hour delay of 10–15 seconds). The other primary intersections, except for I-80 and Vedauwoo Road, would see increases in AADT, PHV, and peak hour delay. The U.S. 287 and Dale Creek Road, U.S. Highway 298 and Unnamed Access Road, and U.S. 287 and Pumpkin Vine Road (CR 241) intersections would experience LOS degradations from A to B. The LOS at U.S. 287 and Cherokee Park Road (CR 31)/Hermosa Road (CR 222) would remain the same as under existing conditions (LOS B). Compared to construction and decommissioning, the changes in traffic at primary intersections during O&M would be negligible. As a result, Project-related traffic at primary intersections during O&M would not result in the degradation of LOS. Construction and decommissioning would result in the degradation of LOS at primary intersections from LOS A to B; however, LOS B would not restrict flows or result in declines in convenience at levels noticeable to drivers and would not exceed an LOS threshold that warrants mitigation.

Table 3-39. Estimated Traffic Volumes and Level of Service for Primary Intersections used during Decommissioning

Intersection	Percent Trucks	AADT (2021)	Commute Peak Hour	PHV (2021)	Peak Hour Delay (seconds)	Peak Hour LOS
U.S. 287 and Sportsman Lake Road (CR 316)	15%	4,686 to 8,836	11 a.m.–2 p.m.	376 to 825	10.5 to 9.8	B to A
U.S. 287 and Cherokee Park Road (CR 31)/ Hermosa Road (CR 222)	15%	4,736 to 8,896	11 a.m.–2 p.m.	379 to 831	10.4 to 13.6	B
U.S. 287 and Dale Creek Road	15%	4,686 to 8,836	11 a.m.–2 p.m.	371 to 825	9.4 to 13.7	A to B
U.S. 287 and Unnamed Access Road	15%	4,676 to 8,856	11 a.m.–2 p.m.	368 to 825	NA ² to 13.1	A to B
U.S. 287 and Pumpkin Vine Road (CR 241)	15%	4,686 to 8,836	11 a.m.–2 p.m.	373 to 817	9.4 to 11.0	A to B
I-80 and Vedauwoo Road exit	NA ¹	40 to 215	10 a.m.–1 p.m.	N/A ¹	N/A ¹	N/A ¹

Sources: Tetra Tech (2020).

Note: N/A = no data available.

¹ Vedauwoo Road is a grade-separated intersection at I-80. No data are available, but traffic counts on Vedauwoo Road are expected to be minimal, and traffic using this intersection would not affect traffic on I-80. This intersection could require radii modifications but is not of concern for LOS.

Issue Statement #2: How would the Project affect existing transportation infrastructure and result in changes to access?

Road closures would be required during construction and decommissioning of the Project to allow the transport of large Project infrastructure (e.g., turbine components) and to allow haul trucks sole access to the road while delivering Project components. These road closures would be temporary and, depending on their location, could temporarily restrict public access to certain roads. O&M of the Project would not require road closures or other activities that would restrict access. No upgrades or changes to existing transportation infrastructure would be required as part of construction, O&M, or decommissioning of the Project. Roads used for Project traffic may require repairs or maintenance from the transport of heavy equipment during construction and operations.

A Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize restrictions to access (TRANS-1). Deliveries of Project components during construction would be performed by professional transportation companies (TRANS-8) and would be scheduled outside of local traffic volume peak times to the extent feasible (TRANS-2) and coordinated with local law enforcement to manage traffic flow (TRANS-6), thereby minimizing access restrictions. Temporary road closures would be implemented with construction cones and/or staffed intersections with a traffic-control flagger and would be limited to 15 minutes (TRANS-3). Vehicles and equipment would be parked in the Project Area and not on roads maintained by Albany County (TRANS-7). Where public access is available within the Project Area, such as State-owned land that is open to the public, Project personnel would coordinate with the State land office to identify appropriate temporal and spatial access restrictions during construction and operations (PHS-11). Roads used for the transport of Project equipment would be repaired and maintained in accordance with a Road Use Agreement with WYDOT and a Road Improvement and Maintenance Agreement with the Albany County Road and Bridge Department.

The Project would not require changes to transportation infrastructure and would not result in irretrievable damages to transportation infrastructure from the movement of heavy equipment during construction or operations. Restrictions to access would be unavoidable during construction and decommissioning of the Project; however, these restrictions would be temporary. Coordination and planning implemented prior to and throughout construction and decommissioning of the Project would reduce the duration of access restrictions. As a result, changes to access would be minimized.

Issue Statement #3: How would the Project contribute to changes in traffic patterns?

The Project would not require upgrades or changes to existing transportation that would be available to the public, except for road or bridge repairs if Project-related vehicles result in damage to existing infrastructure. Changes to traffic patterns from the Project would be limited to temporary road closures during construction and decommissioning, as described under Transportation Impact Statement #2, to allow the transport of large Project infrastructure (e.g., turbine components), to allow haul trucks sole access to the road while delivering Project components, or to accommodate road or bridge repairs. O&M of the Project would not require road closures or other activities that would restrict access.

Road closures during construction and decommissioning could require lane restrictions or detours that would result in changes to traffic patterns. Traffic planning and control measures would be developed and implemented as part of a Transportation and Traffic Management Plan to manage circulation in and around the Project Area (TRANS-1). Signage would be erected to alert drivers about Project construction activities (TRANS-9), and cones and staffed intersections (e.g., traffic-control flagger) would be placed near road closures or Project Area access points to help drivers safely navigate these areas (TRANS-3). The Project would include coordination with local law enforcement to manage traffic flows and monitor traffic speed during deliveries (TRANS-6). Project traffic on access roads constructed for the Project would be restricted to authorized use only (PHS-12). In addition, all staging activities and parking of equipment and vehicles would be restricted to the Project Area and would not be allowed on county-maintained roads (TRANS-7), thereby avoiding unplanned and unmanaged changes in traffic patterns. These measures would reduce the public's exposure to changes in traffic patterns, and when changes to traffic patterns are unavoidable, safety and traffic control measures implemented during construction and decommissioning activities would allow the effective and safe management of changes to traffic patterns, thereby minimizing the creation of hazardous conditions for motorists. Because of the rural nature of the Project Area, pedestrian use of transportation resources would be rare; however, if pedestrians are present during Project construction and decommissioning activities, measures aimed at managing and controlling vehicle traffic and transportation resources would also reduce hazards to pedestrians.

Issue Statement #4: Would the use of railroads to transport Project materials exceed existing railroad capacity or affect existing rail operations?

The UPRR rail yard in Laramie has the existing infrastructure needed to accommodate the delivery and offloading of oversized Project components, such as turbine components, and equipment during construction. Once Project components arrive to the UPRR rail yard, they would either be transported to the Project Area via (1) trucks, (2) the UPRR line that runs through the eastern portion of the Project Area, or (3) a combination of trucks and rail. Use of the UPRR line would require travel through at-grade rail crossings along some of the local roads within the analysis area, including on Hermosa Road approximately 1 mile east of U.S. 287 near Tie Siding and in the north-central portion of the Project Area; Monument Road just north of the intersection with Dale Creek Road and in the eastern portion of the Project Area; and Stevenson Road approximately 2 miles east of U.S. 287 and northwest of the Project Area. If needed, the same rail yard and rail line would be used during decommissioning to transport oversized Project components. Railroads would not be used during O&M.

Project-related uses of the rail yard and rail line would be coordinated with UPRR, WYDOT, and Albany County, as appropriate. As part of a Transportation and Traffic Management Plan developed in coordination with these agencies and implemented prior to construction, steps would be outlined for delivering turbine components (TRANS-1), which would include the identification of the appropriate delivery method (i.e., truck, rail, or a combination) and planning and implementing traffic control measures at at-grade crossings, as appropriate. If needed, an on-site rail yard could be constructed to alleviate demand on existing rail facilities for the delivery and storage of components. Because of this

coordination and planning, the increased demand on railroads from the Project would not exceed the capacity of existing railroads. Increased rail traffic would increase the need to use at-grade rail crossings to reach the Project Area; however, increased demands would not disrupt railroad operations at at-grade rail crossings or require burdensome measures to be implemented beyond those already used for at-grade crossings. As a result, the Project would not result in the exceedance of the capacity of existing railroads in terms of availability and capability to deliver Project components and would not disrupt existing and ongoing rail operations.

Issue Statement #5: How would construction of the Project conflict with aviation use and planning areas or airspace?

The Laramie Regional Airport's master plan does not define the analysis area as part of its planning areas, use areas, or airspace (Laramie Regional Airport 2010). The Project Area is approximately 7 miles from the Rock and Hard Place Ranch Airport. Because there is no airport master plan for the Rock and Hard Place Ranch Airport, the airport's use and planning areas are not known. However, based on the size of the use and planning areas for the Laramie Regional Airport, which is a much larger airport, it can be assumed that the Project Area would be outside of the use and planning areas for the Rock and Hard Place Ranch Airport. As a result, the Project would not conflict with airport use or planning areas.

The distance of the Project Area from the Laramie Regional Airport (approximately 12 miles) would prevent interference with height overlay zones, as defined in 14 CFR 77(e)(77). Although no airport master plan exists for the Rock and Hard Place Ranch Airport, the distance of the Project Area from this airport (approximately 7 miles) would be sufficient for avoiding interference with the airport's airspace. ConnectGen submitted Form 7460-1 Filings for a preliminary turbine layout were provided to the FAA in October 2019. The FAA issued Determinations of No Hazard for the entire turbine layout in April 2020. The filed turbine layout included 151 turbines that were 679 feet in height, so the final turbine layout would be less in height and number of turbines and can therefore be assumed to also receive No Hazard Determinations. As a result, the Project would not conflict with aviation.

3.13.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new traffic, traffic patterns, or changes to transportation infrastructure would occur from the Project and the existing conditions and trends for transportation and access to the analysis area would continue.

3.13.6 Transportation and Access Conclusion

The Project would contribute to changes in traffic volumes on roadways; however, there would be no degradation to the LOS for routes used for Project activities. The Project would increase traffic volumes at primary intersections and would result in degradation of LOS at two intersections from A to B during construction and decommissioning. These degradations of LOS would be limited to construction and decommissioning periods and would be expected to return to baseline conditions following completion of these Project phases. In addition, LOS B would not restrict flows or result in declines in convenience at levels noticeable to drivers and would not exceed an LOS threshold that warrants mitigation. The Project would minimize the extent and duration of access restrictions and changes to traffic patterns. The Project would not exceed the capacity of existing railroads and would not disrupt existing and ongoing rail operations. The Project would not conflict with airport use or planning areas or airspace. Based on this analysis, no significant impacts to transportation and access would be anticipated.

3.14 Vegetation

This section describes the existing context and characteristics of the vegetation resources in the Project Area, including land cover types, noxious weeds, and vegetative species of concern, and assesses potential impacts to these biological resources from the construction and operations of the Project.

3.14.1 Regulatory Background

Plants, like animals, are subject to ESA Federal regulations mentioned in section 3.4.1, “Regulatory Background,” and section 3.5.1, “Regulatory Background.” If an action on private lands has a Federal nexus, that Federal agency must include any federally listed plant species in Section 7 consultation to ensure that authorization of that action does not jeopardize the continued existence of that species.

Although the State of Wyoming does not have any statutes establishing protections for native plant species and does not list native plants as SGCN in their SWAP, the State has enacted the Wyoming Weed and Pest Control Act that states: “The district board shall: Implement and pursue an effective program for the control of designated weeds and pests” (W.S. 11-5-105(a)(i)). The Wyoming Department of Agriculture absorbed this responsibility and manages and coordinates weed and pest activities for the State of Wyoming among Wyoming Weed and Pest Control Districts, the Wyoming Weed and Pest Council, Federal agencies, municipalities, trade associations, other states, and other organizations as well as the private sector (Wyoming Department of Agriculture 2020).

The Wyoming Weed and Pest Council, a result of the Wyoming Weed and Pest Control Act, comprises 23 Weed and Pest Districts in the State of Wyoming that correspond with county boundaries. The Albany County Weed and Pest Control District, established in 1973, provides services and information to the public about noxious weeds, determines which species are listed as noxious weeds at the county level, and educates the community about noxious weeds (Albany County Weed and Pest Control District 2020). How plants are designated as noxious weeds depends on the differing regulatory schemes and is described below:

- State-designated weeds and pests are considered of such detriment to the state that each is designated by an Executive Board of Directors and the Wyoming Weed and Pest Council.
- County-declared weeds or pests are considered a detriment to a district.

3.14.2 Data Sources

The information presented in this section comes from various sources, including technical biological survey reports developed for the Project, academic and peer-reviewed literature sources, publicly available GIS data, and State and local resources.

3.14.3 Analysis Area

The analysis area for vegetation resources, excluding noxious weeds, is the siting corridors. This analysis area captures areas of potential new ground disturbance (i.e., access roads, turbine pads, laydown yards) that would affect native vegetation communities if converted to Project-related features, as well as captures overarching changes to the landscape from Project construction and operations.

The analysis area for noxious weeds is the Project Area. This analysis area is appropriate as it considers secondary effects to vegetation communities from the potential spread of noxious weeds during vegetation removal activities associated with the Project.

3.14.4 Baseline Description

Several factors influence the potential for vegetation species to occur within the analysis area, including hydrology, soil types, population connectivity, slope, aspect, and habitat quality. Descriptions of the vegetation communities (or the dominant plant species that characterize the species composition and physical structure of the landscape) that occur within the analysis area and Project Area more generally are provided in this section. The “Biological Resources Evaluation” technical report prepared for the Project describes the vegetation resources present within the analysis area and evaluates potential impacts to plant species of concern that could result from Project construction and operations (Tetra Tech 2020d). Below is a discussion based on the results of the “Biological Resources Evaluation” technical report.

The Project Area is located within two primary (Level IV) ecoregions: the Laramie Basin and Crystalline Mid-elevation Forests (Chapman et al. 2004). Chapman et al. (2004) describe the Laramie Basin Ecoregion as a wide, intermontane valley dominated by mixed-grass prairie that is generally too dry for Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), except in areas where snow accumulates. Natural vegetation in this ecoregion observed in the analysis area includes needle-and-thread grass (*Hesperostipa comata*), western wheatgrass (*Pascopyrum smithii*), blue grama (*Bouteloua gracilis*), Indian ricegrass (*Achnatherum hymenoides*), and various forb and shrub species. The Crystalline Mid-Elevation Forests Ecoregion is described by Chapman et al. (2004) as a mix of lodgepole pine forest, Douglas-fir forest, Ponderosa pine (*Pinus ponderosa*) woodlands, and aspen forest woodlands with understories of grasses, forbs, and shrubs. Natural vegetation in this ecoregion observed in the analysis area includes aspen (*Populus tremuloides*), limber pine (*Pinus flexilis*), mountain mahogany (*Cercocarpus ledifolius*), silver sagebrush (*Artemisia cana*), serviceberry (*Amelanchier* spp.), snowberry (*Symphoricarpos* spp.), and other shrub species. Land uses in these ecoregions include wildlife habitat, livestock grazing, mineral extraction, and recreation; vegetative cover in the analysis area is affected by current grazing and residential settlement land use patterns in the area (section 3.8, “Land Use”). The Project Area more generally is characterized by shrublands, grasslands, rocky outcrops, some forested areas, and a few perennial water features and wetlands.

Elevations within the Project Area range from approximately 7,500 feet to 8,500 feet above mean sea level. Average annual precipitation measured in Laramie, Wyoming (the nearest location to the Project Area with climate data), is approximately 11 inches (U.S. Climate Data 2020). Mean temperature ranges from 27 to 56 degrees Fahrenheit annually (U.S. Climate Data 2020).

3.14.4.1 Land Cover

National Land Cover Database

The NLCD is a publicly available dataset that provides spatial reference and descriptive data for characteristics of the land surface in the United States. The NLCD was developed through a partnership of Federal agencies led by the USGS. Based on a desktop review of the NLCD, land cover for the Project Area consists primarily of shrub/scrub vegetation (64.1 percent) and grassland/herbaceous cover (30.6 percent; figure 3-17) (Tetra Tech 2020d). Land cover within the analysis area reflects land cover in the overall Project Area and is predominantly shrub/scrub (64.0 percent) and grassland/herbaceous (30.4 percent) (Yang et al. 2018). Another seven NLCD land cover types account for approximately 5.6 percent of the analysis area collectively (table 3-40). A description of the primary land cover types mapped in the analysis area is provided below and is based on the NLCD legend.

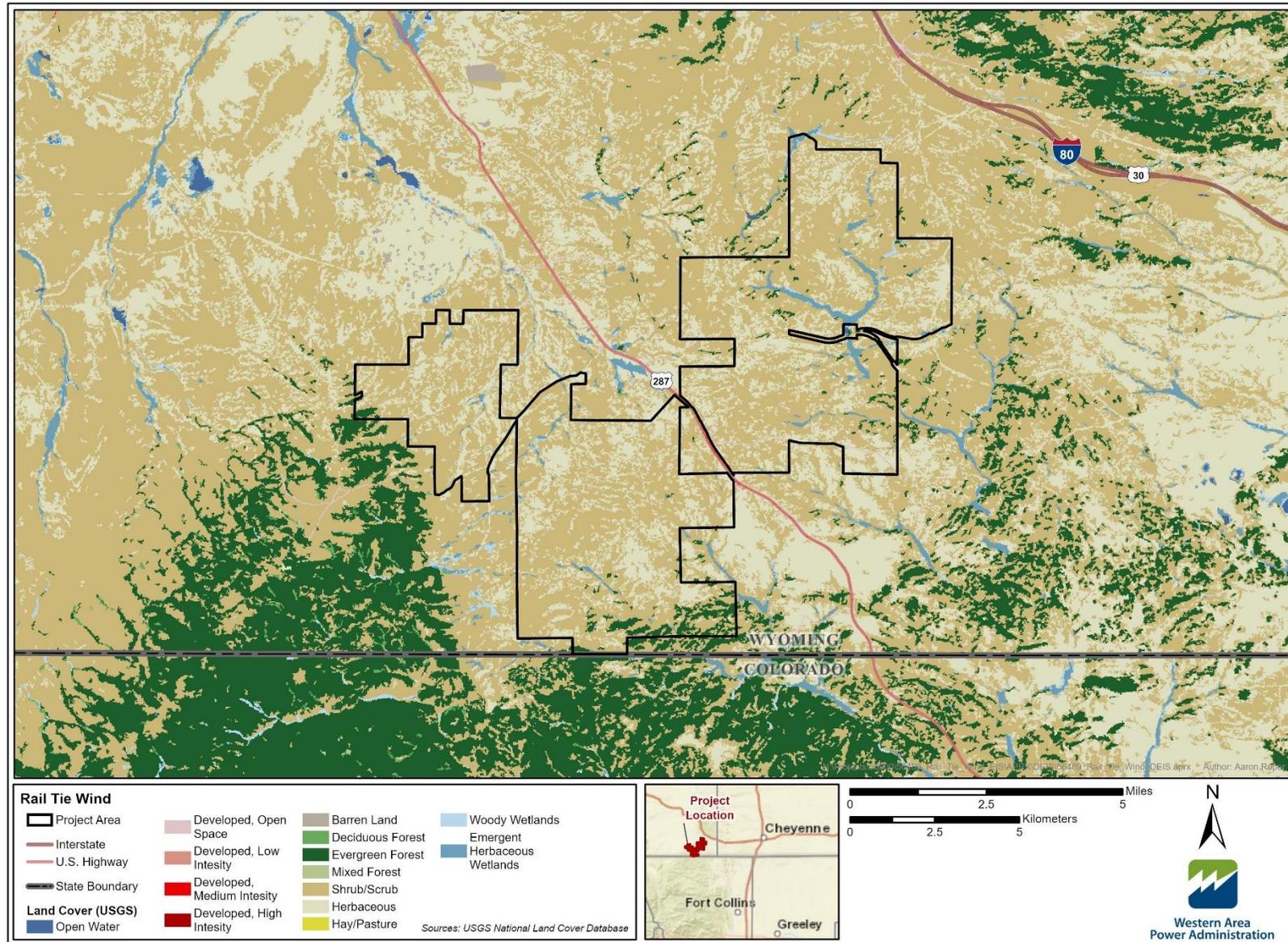


Figure 3-17. National Land Cover Database land cover types within the Project Area.

Table 3-40. National Land Cover Database Land Cover Types within Proposed Siting Corridors

NLCD Cover Class Type	Acres within Siting Corridors	Percentage of Siting Corridors
Shrub/scrub	4,121.8	64.0%
Grassland/herbaceous	1,955.9	30.4%
Evergreen forest	64.8	1.0%
Herbaceous wetland	57.5	0.9%
Woody wetland	15.4	0.2%
Developed, open space	10.5	0.2%
Deciduous forest	2.0	<0.1%
Barren land	1.7	<0.1%
Developed, low intensity	<1	<0.01%
Unclassified	211.7	3.3%
Total¹	6,441.3	100%

Sources: Tetra Tech (2020d); Yang et al. (2018).

¹ Totals may not be exact because of rounding error.

Shrub/Scrub

This land cover type is characterized by areas dominated by shrubs less than 16 feet tall with shrub canopy typically greater than 20 percent of total vegetation. This land cover type includes true shrubs, young trees in an early successional stage, or trees stunted from environmental conditions.

Grassland/Herbaceous

This land cover type is characterized by areas dominated by graminoid or herbaceous vegetation (i.e., annuals, biennials, or perennials that have no persistent woody stem aboveground), generally greater than 80 percent of total vegetation. These areas are not subject to intensive management such as tilling but can be used for grazing.

Field-Based Habitat Assessment

Field reconnaissance of the habitat in the analysis area conducted in September 2019 indicates that vegetation and landscape features contain a much higher cover of shrub/scrub vegetation than what was mapped by the NLCD data, accounting for nearly all of the grassland/herbaceous cover mapped by the NLCD (table 3-41). Natural vegetation within the analysis area is mostly shrub/scrub, and more specifically sagebrush steppe (5,821 acres or 94.5 percent), which is composed of low-stature shrubs and grasses. The dominant shrub species observed in the analysis area representative of this ecological system is Wyoming threetip sagebrush (Tetra Tech 2020d), which is a low-growing, dwarf form that reaches 15 inches in height (Tilley and Pickett 2019). Foothill shrublands also account for the shrub/scrub land cover in the analysis area and were mapped within the southern and western portions of the Project Area (177 acres within the analysis area). A small area of aspen/deciduous forest (1 acre within the analysis area) was mapped along the westernmost portion of the Project Area, whereas cliffs and rock outcrops were mapped within the northeastern portion of the Project Area (31 acres within the analysis area) (Tetra Tech 2020d). Some lower montane forest (Evergreen Forest) was mapped within the southernmost portion of the Project Area with a few small areas located within the eastern portion of the Project Area (52 acres within the analysis area) (Tetra Tech 2020d).

Table 3-41. Field-Verified National Land Cover Database Land Cover Types within Proposed Siting Corridors

NLCD Cover Class Type	Acres within Siting Corridor	Percentage of Siting Corridor
Shrub/scrub	5,998.6	93.1%
Barren land	92.9	1.4%
Evergreen forest	51.8	0.8%
Herbaceous wetland	50.6	0.8%
Woody wetland	26.9	0.4%
Pasture/hay	4.7	0.1%
Open water	2.0	<0.1%
Deciduous forest	0.8	<0.1%
Unclassified	211.7	3.3%
Total¹	6,441.3	100%

Source: Tetra Tech (2020d).

¹ Totals may not be exact because of rounding error.

3.14.4.2 Noxious Weeds

Noxious weeds are species of non-native plants that can alter habitat structure, exclude native plants, decrease availability of water and forage for both plants and wildlife, and ultimately disrupt the functionality of native plant communities. Invasive plant species and noxious weeds have the potential to negatively impact biological resources, recreation, and wildlife management for said reasons. Managing invasive plant species and noxious weed populations is challenging and the rapidly expanding presence of annual invasive grasses, such as cheatgrass (*Bromus tectorum*) has complicated efforts for restoration of native plant communities. There are currently 30 State-designated noxious weeds in Wyoming (including cheatgrass) and additional weeds designated as declared weeds in every county in Wyoming (Wyoming Weed and Pest Council 2019a). In Albany County, there are three county-listed noxious weeds: locoweed (*Oxytropis nana*), larkspur (*Delphinium sp.*), and cheatgrass (Wyoming Weed and Pest Council 2019b).

Several Wyoming State-listed noxious weeds were identified within the analysis area during the field-based habitat assessment in September 2019 (Tetra Tech 2020d). Most notable among these species were cheatgrass, Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), and common mullein (*Verbascum thapsus*). Cheatgrass was the only Albany County-listed noxious weed observed in the analysis area.

3.14.4.3 Species of Concern

Special-status species include those listed under the ESA and are discussed in section 3.4.4.5, “Special-Status Species.” Species of concern are those species listed as SOC by the WYESFO because the Wyoming SWAP does not list plants as SGCN. The greatest threat to plant species of concern in Wyoming is habitat loss, invasive plants and noxious weeds, fire suppression, and overgrazing.

There are only two WYESFO SOC plant species listed, the Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*) and Fremont county rockcress (*Boechnera pusilla*) (FWS 2020b). Neither of these species are known to occur in Albany County, and, therefore, vegetative species of concern are not further addressed in this EIS.

3.14.5 Impacts to Resource

This section describes the effects on vegetation resources from the construction and operations of the Project.

3.14.5.1 *Impact Indicators*

The following indicators have been estimated to provide the context and intensity of impacts expected from construction, O&M, or decommissioning of the Project as they relate to vegetation resources:

- Acres of new disturbance by habitat type.
- Time needed for habitat types to re-establish.
- Acres of impact to suitable special-status plant species habitat types.
- Effects on vegetation resources are considered at the individual, community, and population levels.

3.14.5.2 *Methods of Analysis*

The following steps were completed to analyze potential impacts to vegetation resources:

- Technical biological survey reports were reviewed to determine vegetative communities present in respective analysis areas, including noxious weeds. Natural histories of vegetative species expected to occur in the analysis area were evaluated to determine their potential for reclamation success.
- Spatial data habitat types and known populations of noxious weeds were compared with Project infrastructure (siting corridors and access roads) to determine potential for spread of noxious weeds and impacts to habitat types.

3.14.5.3 *Proposed Action*

Issue Statement #1: When would construction and operations involve ground disturbance with the potential to cause the introduction and spread of noxious weeds and other invasive plant species, and how would that introduction affect revegetation success?

Construction activities that remove vegetation and disturb soils would increase the potential for invasive plant species, including noxious weeds, to be introduced or for them to spread. Ground disturbance could result in the mixing of topsoil with subsoil and loss and alteration of seed banks, which could ultimately result in long-term reduction of native plant productivity and introduction of noxious and invasive weeds. The introduction of invasive plant species in disturbed areas could lead to changes in vegetation communities. Noxious and invasive weeds could become widespread within areas of ground disturbance, particularly where there are established nearby populations providing a seed bank. Noxious and invasive weeds can affect revegetation success by outcompeting native plant species for nutrients, space, and available moisture.

Coordination between the weed management contractor and host landowners regarding specific treatment methods on their respective properties would occur (VEG-7), and any herbicide used as part of vegetation management activities would follow label instructions and relevant Federal, State, and local laws (VEG-8). Additionally, a preconstruction survey of the Project footprint would be conducted to identify existing locations of noxious weeds, any locations delineated would be identified in a Weed Management Plan, and appropriate controls would be applied to Project activities in these areas (VEG-5). Upon completion of construction, a postconstruction weed inventory survey would be performed to validate the effectiveness of the weed management program and verify that invasive weed levels have not exceeded preconstruction levels (VEG-6).

Areas of disturbance and areas directly adjacent to disturbance would be the most susceptible to weed infestations (table 3-42).

Table 3-42. Acres of Disturbance by National Land Cover Database Land Cover Types within Proposed Siting Corridors

NLCD Cover Class Type	Acres of Disturbance within Siting Corridors	Percentage of Siting Corridors
Shrub/scrub	1,071.9	16.6%
Grassland/ herbaceous	559.0	8.7%
Evergreen forest	7.9	0.1%
Herbaceous wetland	9.4	0.1%
Woody wetland	3.2	<0.1%
Developed, open space	2.2	<0.1%
Developed, low intensity	1.2	<0.1%
Barren land	0.4	<0.1%
Developed medium intensity	0.2	<0.01%
Total	1,655	25.7%

Sources: Tetra Tech (2020d); Yang et al. (2018).

Issue Statement #2: How would construction and operations affect vegetation cover? Are all vegetation cover types present in the Project Area reclaimable?

Ground-disturbing construction and operations activities would remove individual plants and replace vegetation cover with human-made structures until Project decommissioning and reclamation.

Areas disturbed during construction would be revegetated as soon as practicable, either through natural revegetation practices or through reseeding with plant species native to the affected ecosystems used whenever practicable (VEG-2). Prior to the start of construction, a Reclamation Plan would be developed for the Project that would guide the reclamation and revegetation of disturbed areas during and following construction using locally approved, weed-free, native seed mixes (VEG-3). The Project Reclamation Plan would include implementable measures to properly handle topsoil; re-establish local contours and a suitable seedbed (i.e., respread topsoil); develop and reseed with locally adapted native or desired seed mixes, as coordinated with surface landowners; and ensure the re-establishment of native or desirable, self-propagating vegetation communities that approximate the surrounding landscapes. Reclamation monitoring and adaptive management strategies would be employed as needed to further evaluate reclamation success.

A preconstruction survey of the Project footprint would be performed to identify existing locations of noxious weeds, locations delineated would be identified in a Weed Management Plan, and appropriate controls would be applied to Project activities in these areas to minimize the effects of noxious weeds on plant communities (VEG-5). The Project would coordinate with the weed management contractor and host landowners regarding specific treatment methods on their respective properties (VEG-7). Any herbicide use as part of vegetation management activities would follow label instructions and relevant Federal, State, and local laws (VEG-8). Following construction, a weed inventory survey would be performed to validate the effectiveness of the weed management program and ensure that invasive weed levels have not exceeded preconstruction levels (VEG-6).

Approximately 1,655 acres of vegetation would be removed during the construction and operations of the Project (see table 3-42); of this total, approximately 1,471 acres (89 percent) would be removed during construction activities and would be reclaimed as soon as practicable after construction ceases. Approximately 184.1 acres (11 percent) of vegetation would be removed for Project-related infrastructure

and would not be reclaimed until the end of the Project life and after decommissioning. Within the analysis area, shrub/scrub vegetation was dominant (1,072 acres of disturbance within this land cover type [64.8 percent]), and the most common sagebrush species identified was Wyoming threetip sagebrush. Wyoming threetip sagebrush recovers well following extensive disturbances and regenerates relatively quickly (Monsen 2004; Tilley and Pickett 2019); it is not difficult to establish by direct seeding, rearing, or transplanting growing quickly and attaining a mature stature in 3 to 5 years (Monsen 2004). This is the dominant sagebrush species representative of the ecological system that accounted for approximately 93.1 percent of the analysis area (see table 3-41); therefore, reclamation is expected to be successful and timely in restoring native vegetation cover. The EPMs regarding revegetation mentioned previously will support reclamation success.

Issue Statement #3: Would fugitive dust from construction and operations activities affect plant productivity in the analysis area?

Fugitive dust from vehicle traffic associated with construction and maintenance activities would be a potential effect on nearby plant communities because fugitive dust has the potential to affect photosynthetic rates and decrease plant productivity.

Prior to the start of construction, a Fugitive Dust Plan would be prepared pursuant to Wyoming Air Quality Standards and Regulations (AQ-1). Unpaved access roads and disturbed areas where construction activities are occurring, including temporary laydown areas, would be treated with water or other surfactants as frequently as necessary to further control fugitive dust (AQ-2).

The overall impact to vegetation from fugitive dust would be localized along access roads and would be reduced once construction activities were completed, occurring only occasionally during maintenance activities.

3.14.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the resource would occur from the Project and the existing conditions and trends for the resource would continue.

3.14.6 Vegetation Conclusion

Construction activities would remove vegetation and disturb soils, increasing the potential for noxious and invasive plant species establishment. Measures to monitor (VEG-6) and treat (VEG-7) noxious and invasive species would minimize this risk. Following construction, 88 percent of disturbed vegetation would be reclaimed, and an additional 11 percent of disturbed vegetation would be reclaimed during decommissioning. Reclamation is expected to be successful in restoring native vegetation cover based on the primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMs. Fugitive dust from vehicles would affect plants growing in localized areas along access roads, and effects would diminish with the end of construction, occurring only occasionally during O&M. Based on this analysis, no significant impacts would be anticipated for vegetation.

3.15 Wetland and Water Resources

Wetland and water resources include information on surface water resources (including wetlands) that could be potential WOTUS, riparian areas around the surface waters, and groundwater resources. This section does not focus on impacts to aquatic wildlife, which is discussed in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.” This section describes the existing context of the water resources environment and assesses the potential impacts from the construction and operations of the Project.

3.15.1 Regulatory Background

3.15.1.1 Federal Regulations

Clean Water Act

The CWA establishes a structure to regulate pollutant, dredged, or fill material discharges into WOTUS. Section 404 of the CWA provides the Army Corps of Engineers (ACE) jurisdiction to regulate potential WOTUS. Wetlands are defined in 33 CFR 328(e). Jurisdictional wetlands are “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 328(e)). ACE jurisdiction in nontidal surface WOTUS is determined by the ordinary high water mark (OHWM), which is defined as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328(e)).

On January 23, 2020, the EPA and ACE, per EO 13788, finalized the Navigable Waters Protection Rule, which identifies four categories of waters that are federally regulated under the CWA and would be considered jurisdictional WOTUS:

1. Territorial seas and traditional navigable waters.
2. Perennial and intermittent tributaries to territorial seas and navigable waters.
3. Certain lakes, ponds, and impoundments of jurisdictional waters.
4. Wetlands adjacent to other jurisdictional waters.

Under this EO, ephemeral features, groundwater, most farm and roadside ditches, and artificial lakes and ponds are not jurisdictional WOTUS. Implementation timing of this final rule is uncertain because of legal challenges.

Permits under Section 404 of the CWA that address construction impacts to WOTUS include either a nationwide permit or an individual permit. Impacts over 0.5 acre or over 300 linear feet of stream bank require an individual permit.

Consistent with Section 401 of the CWA, applicants for a Clean Water Act Section 404 permit in Wyoming must obtain a Clean Water Act Section 401 Water Quality Certification from the WYDEQ WQD. The certification and any associated conditions ensure that discharges comply with Wyoming’s Surface Water Quality Standards. WYDEQ may waive, grant, or require an individual certification, depending on the type of permit and surface waterbody associated with the discharge. The permit process timeline is part of the permitting timeline for the Section 404 permit application process to ACE. If an individual Section 401 permit is required, WYDEQ conducts a separate public notice and comment period prior to issuing the Section 401 certification.

Per 10 CFR 1022.24(c), WAPA must follow DOE regulations to coordinate with the relevant Federal agency for proposed actions in wetlands or floodplains to determine if assessments are necessary for WAPA actions. During the environmental review process, they must coordinate with appropriate agencies to establish procedures and responsibilities. This section of the EIS fulfills the requirements noted above and as stated in EO 11990 and EO 11988.

3.15.1.2 State Regulations

Wyoming Department of Environmental Quality

WYDEQ WQD is responsible for administering Sections 305(b) and 303(d) of the CWA in Wyoming. Section 305(b) of the CWA requires states to describe the water quality condition of their waters, including designated use determinations. Section 303(d) of the CWA requires that a state develop a listing of waters that do not fully support existing or designated uses and, therefore, require development of a total maximum daily load to restrict the pollutant of concern from entering the waterbody and help improve its water quality. Wyoming Water Quality Rules and Regulations and the Wyoming Environmental Quality Act provide the WYDEQ primary jurisdiction over the quality of waters of the State. In accordance with Wyoming Water Quality Rules and Regulations, Chapter 1, Section 23(c)(ii), the WQD administrator may authorize temporary increases in turbidity above the numeric criteria. Wyoming Water Quality Rules and Regulations, Chapter 4, also requires that the WQD be notified of any oil or hazardous substances that have been released and that enter, or threaten to enter, waters of the State.

Wyoming has been delegated permit authority for the National Pollutant Discharge Elimination System. The WYDEQ WQD is the State agency responsible for regulating the Pollutant Discharge Elimination System program in the State of Wyoming (WYPDES). Construction activities that disturb between 1 and 5 acres, or less than 1 acre if part of a plan of development, require a WYPDES Small Construction General Permit. Construction activities that disturb 5 or more acres of land require a WYPDES Large Construction General Permit under Section 402 of the CWA. A Large Construction General Permit also requires a complete SWPPP.

Both the WYPDES large and small construction stormwater permits now cover discharges from construction dewatering if those discharges are accumulated stormwater with only minor amounts of groundwater.

Wyoming Wetlands Act

The Wyoming Wetlands Act is a notification program for draining wetlands larger than 5 acres. It applies to any “naturally occurring or man-made wetland, or any series thereof, which has an area comprising five acres or more.” The act requires that a party wishing to drain a wetland submit the appropriate paperwork to WYDEQ. There is no application or approval process. The act also established a mitigation banking program. If a party fails to comply with the notification requirement, he or she may not take advantage of the banking program (W.S. 35-11-301 to 35-11-313).

General Permit for Wetland Mitigation

The WYDEQ WQD is also responsible for isolated wetlands (wetlands not under CWA Section 404 jurisdiction) and could require a general permit if isolated wetlands are disturbed by Project construction. Under the WYPDES program, this general permit for isolated wetlands mitigation authorizes the discharge of fill or dredge material into (1) naturally occurring isolated wetlands or (2) human-made isolated wetlands used to mitigate the loss of naturally occurring wetlands. This permit applies to the loss or destruction of greater than 1 cumulative acre of isolated wetland habitat for a total project. Coverage under this permit would require a mitigation plan to offset the loss of wetland functions and values such that Project activities result in no net loss of wetlands.

Wyoming State Engineer's Office Water Use Permits

The Surface Water and Engineering Division of the SEO is responsible for reviewing permit applications for any request for putting surface waters of the State to a beneficial use. In Wyoming, water could be appropriated from an existing right holder, such as a municipal water source, in accordance with a Temporary Water Use Agreement between the water user and water right holder (W.S. 41-3-110). This contract must identify the source of the water, the amount of the appropriation, and the proposed temporary use, and is subject to approval by the Wyoming SEO. The duration of the temporary water use may not exceed 2 years, at which point a new agreement is required.

Development of new water supply wells requires an applicant to obtain an approved Permit to Appropriate Ground Water from the Groundwater Division of the Wyoming SEO prior to the commencement of any drilling or completion activities (W.S. 41-3-930).

If an applicant for an ISC Permit plans to construct a facility that would use more than 800 acre-feet (260.7 million gallons) of water per year, the applicants must submit a water supply and water yield analysis to the Wyoming SEO. The State Engineer then reviews the analysis to “render a preliminary opinion as to the quantity of water available for the proposed facility.” This preliminary opinion is made available for public comment prior to preparation of a final opinion. The State Engineer’s final opinion is binding on the ISC (W.S. 35-12-108).

In addition to issuance of water permits, the Wyoming SEO is also responsible for review of water-related activities in the Platte River Basin of Wyoming that have a Federal nexus and could be subject to consultation under Section 7 of the ESA. This involves review of the proposed activity and a depletions analysis, if necessary, to determine whether the Project qualifies for coverage under the Wyoming Depletions Plan.

Construction Dewatering Permit

Both the WYPDES large and small construction stormwater permits cover discharges from construction dewatering if those discharges are accumulated stormwater with only minor amounts of groundwater (WYDEQ 2020b). Discharges that have a significant groundwater component and that are pumped or siphoned to a storm drain or could reach a surface water of the State, directly or by overland flow, are considered a process wastewater and must be covered under a separate WYPDES permit for wastewater discharges. In general, most short-term construction dewatering discharges to storm drains or surface waters could be covered under a general permit specifically written for short-term, temporary discharges. If construction site water would be applied to the land surface so that it would not run off to surface waters, the local District Engineer would need to determine if a Land Application Permit is required.

3.15.1.3 Local Regulations

Floodplain Development Permit

The Albany County Flood Damage Prevention Ordinance guides development and protection of property in floodplains within Albany County. The basis for establishing the areas of special flood hazard are the Flood Insurance Rate Maps provided by the Federal Emergency Management Agency (FEMA). The ordinance requires that a Floodplain Development Permit be submitted to the County containing an elevation certificate provided by a licensed engineer stating that the structure’s lowest floor has been elevated to 1 foot above base flood elevation.

This permit is required for Project structures and buildings located within a floodplain zone on privately-owned lands. Wind Energy Conversion Systems siting approval is required prior to submittal of a Floodplain Development Permit.

3.15.2 Data Sources

Data used to characterize the baseline and analyze the impacts to wetlands and water resources from the Project include the following sources:

- EPA ecoregions
- USGS water gauging stations
- WSGS Platte River Basin Water Plan Update
- Wyoming SEO well permit database
- WYGFD scoping response letter to WAPA received January 29, 2020
- USGS National Hydrography Dataset (NHD)
- FWS National Wetlands Inventory dataset

Further information, research, and data to support findings of the following analysis can be found within the “Rail Tie Wind Project Surface Water and Groundwater Technical Report” (Tetra Tech 2020m) and the “Rail Tie Wind Project Reconnaissance Level Assessment” (Tetra Tech 2021b).

3.15.3 Analysis Area

The analysis area for wetland and water resources includes the siting corridors plus a 300-foot buffer around surface waterbodies (including wetlands), including locations within the analysis area where groundwater is shallow enough to be reached by the depth of disturbance. Potential Project impacts are not anticipated to affect impaired reaches downstream due to limited and localized Project disturbance, and therefore the analysis area does not include impacts to downstream resources outside of the analysis area other than potential depletions to the Platte River system. Potential Project disturbance is included for each 12-digit HUC subwatershed, though EPM implementation is expected to limit potential impacts to water resources to the analysis area.

3.15.4 Baseline Description

3.15.4.1 Surface Water

The hydrology of the analysis area is typical of the mountainous high plains of Wyoming (ERM 2010a). Water is stored as snowpack and released throughout the year from mountain headwaters. Snowmelt runoff peaks in May through July. Rainfall comprises a small component of overall annual stream flow. Many of the streams in the analysis area are ephemeral and intermittent streams, indicating that base flow and rainfall-driven stream flow are low. The average annual precipitation for the area is approximately 11 inches, the wettest months being May and June (NOAA 2020b). Average total snowfall for the area is 4.17 feet (NOAA 2020b).

The Project Area has two main drainages, one that drains to the North Platte River and one that drains to the South Platte River. The two watersheds in the Project Area are the Laramie River-Harney Creek watershed (HUC 1018001004) and the Dale Creek watershed (HUC 1019000704) (Tetra Tech 2020m).

The Laramie River-Harney Creek watershed is part of the Upper Laramie River subbasin (HUC 10180010). The Laramie River, the subbasin's major drainage, drains north into Wyoming from its headwaters within the southern Medicine Bow Mountain Range in Colorado, ultimately draining into the North Platte River. The Dale Creek watershed is part of the Cache la Poudre subbasin (HUC 10190007). Its major drainage, the Cache la Poudre River, drains east across northern Colorado from its headwaters along the Front Range of Colorado and southern Wyoming, and ultimately drains to the South Platte River. The North Platte and South Platte Rivers join to form the Platte River, which in turn empties into the Missouri River, the Mississippi River, and, ultimately, the Gulf of Mexico.

Surface Water Quantity and Quality

The Project Area does not have surface water gauging stations for flow. The nearest USGS gauging station is at the Colorado-Wyoming state border at Sand Creek (No. 06659580), which had flow ranges from 1 cubic feet/second to 127 cubic feet/second. Tetra Tech (2020m) used this gage station in their Surface Water and Groundwater Technical Report as the best representative data for water quantity in the Project Area.

The nearest USGS gage does not measure water quality, and WYDEQ has not assessed surface water quality standards attainment in the Project Area as part of its biennial Clean Water Act Section 305(b) and 303(d) Integrated Report. Previous field investigations described in the "Surface Water Assessment Report for the Hermosa West Wind Farm Project" (ERM 2010a) noted channel downcutting at portions of Government Creek, Forest Creek, Willow Creek, and Fish Creek.

Wetlands and Surface Waters

Tetra Tech (2020m) performed a desktop analysis and field reconnaissance of wetland and surface water features that could be impacted by the Project, including those that could potentially be considered WOTUS and non-jurisdictional waters. FWS National Wetlands Inventory and USGS NHD data were used to guide field reconnaissance surveys for potential wetlands and stream features, respectively. The draft EIS used Tetra Tech's (2020m) survey data. However, the EPA pointed out that these data were not inclusive of all waterbody features. The analysis was rerun using the NHD dataset and incorporated into the new findings in the final EIS. Though wetlands were not formally delineated, potential wetlands were mapped following methodology described in the "Corps of Engineers Wetlands Delineation Manual" (ACE 1987), "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region" (Version 2.0; ACE 2010), and "A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States" (ACE 2014). Approximately 67.5 acres of wetlands were mapped within the siting corridors: 30.1 acres of freshwater emergent wetlands, 25.2 acres of freshwater forested/shrub wetlands, and 12.2 acres of palustrine shrub wetlands. The wetlands are mostly associated with stream features and their tributaries.

Stream features and other waterbodies were mapped by Tetra Tech (2020m) based on the presence of an OHWM. Centerlines of stream features with an OHWM of less than 10 feet were mapped, and stream features were classified based on flow regime. During the field reconnaissance, 38,382.7 linear feet of streams were mapped within the siting corridor: 2,109.6 linear feet of perennial streams, 4,022.2 linear feet of intermittent streams, and 32,250.9 linear feet of ephemeral streams.

Hydric Soil

Hydric soils are indicative of the presence of a wetland. Hydric soils form under saturated conditions, flooding, or ponding for a long enough period in the growing season to develop anaerobic conditions in

the upper portions of the soil. NRCS Web Soil Survey indicates one hydric soil map unit present within the siting corridors: Canburn loam, 1 to 4 percent slopes for 21.8 acres. Most of these soils are in siting corridors in the northeastern and southwestern portions of the Project Area.

Floodplains

Tetra Tech (2020m) reviewed FEMA Flood Insurance Rate Maps to assess floodplains within the Project Area. Approximately 15.8 acres of the siting corridors are in the 100-year floodplain (1 percent annual chance flood hazard) and are in the northeastern portion of the Project Area. These areas are associated with Pump Creek, Dale Creek, and their tributaries in that area. However, no aboveground structures are sited within these floodway areas (Zone AE; FEMA 2011). Wind turbines are generally sited in areas of higher elevation to increase the potential for intercepting strong(er) winds and are not sited within floodplains.

3.15.4.2 Groundwater

Aquifers

The analysis area is located within the Casper groundwater system, which recharges through local precipitation. The direction of groundwater flow is generally from east to west. Within the Project Area, there are three sub-aquifers: the Late-Paleozoic Aquifer and the Quaternary Aquifer in the northwest, and the Precambrian Aquifer system in the southern and eastern portions (Taucher et al. 2013). The Late-Paleozoic Aquifer can reach thicknesses of approximately 1,000 feet in the western portion of the Project Area, whereas the Quaternary Aquifer has a thickness less than 50 feet.

No municipal or community supply wells have been identified in the analysis area. Groundwater wells for domestic use and livestock are common in the analysis area; Tetra Tech (2020m) identified 40 wells with these uses. Twenty-seven of the wells report a static water depth of 10 feet or less, showing shallow groundwater within the analysis area. Wells within the northeastern portion of the analysis area generally report water depths of 0 to 10 feet below ground surface (bgs), wells located in the southern and western portion have water depths between 10 to 20 feet bgs, and there are a few wells with water depths reported from 20 to 50 feet bgs. Geotechnical investigations conducted east of U.S. 287 encountered groundwater at a depth of 48.5 feet below ground at one location and did not encounter groundwater at the other 11 locations, which ranged in total depth from 16.0 to 49.0 feet (Terracon 2020). Geotechnical investigations west of U.S. 287 were conducted at six sites within the Project Area at total depths ranging between 7.5 and 45.0 feet. Groundwater was encountered in only two locations, at a depth of 27.5 and 28.0 feet bgs (Black and Veatch 2009, 2010).

Groundwater quality varies within the analysis area but tends to have high total dissolved solids (Taucher et al. 2013). Because the aquifers in the Project Area are relatively shallow, they are categorized as highly sensitive to contaminants (e.g., pesticide, herbicide, spills).

Springs

There are five mapped springs where groundwater discharges to the surface in the Project Area (Tetra Tech 2020m). The springs are in the southern and western portions of the Project Area.

3.15.5 Impacts to Resource

This section describes potential impacts to wetland and water resources associated with construction, O&M, and decommissioning of the Project.

3.15.5.1 Impact Indicators

The following impact indicators were assessed to determine expected impact to wetland and water resources from construction, O&M, or decommissioning of the Project:

- Waterbody crossings, ground disturbance, hydric soils, or highly erodible soils in analysis area that could lead to soil and contaminant transport via wind or stormwater runoff to water resources.
- Foundation excavation for turbine pads deep enough to alter aquifer connectivity.
- Decrease in flow or volume (i.e., depletion) for waterbodies within the analysis area and/or the Platte River Basin.
- Groundwater-contaminating activity distances from water resources within the analysis area.
- Depth of blasting or foundational activities relative to depth to groundwater within the analysis area.

3.15.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to wetland and water resources:

- Temporary and permanent uses of the Project were evaluated to determine the extent to which existing waterbodies (i.e., streams, lakes, wetlands) would be prone to disturbance.
- Depth of confined aquifers were reviewed to determine if subsurface-disturbing activities are deep enough to potentially connect aquifers.
- Temporary and permanent uses of the Project were evaluated to determine the extent to which the flow and/or volume of water in the Platte River Basin would be restricted or reduced.
- Temporary and permanent storage and use of chemicals for the Project were reviewed to determine the potential risk of contamination for existing surface water and groundwater sources within the analysis area.

3.15.5.3 Proposed Action

Issue Statement #1: How would surface-disturbing Project activities associated with the Project lead to increases in sedimentation of a waterbody or degradation of surface water quality?

The analysis area for surface water resources includes the siting corridors plus a 300-foot buffer. Although 3.85 percent of the Project Area is already on disturbed land, surface-disturbing activities associated with the Project could lead to increases in sedimentation of adjacent and downstream waterbodies within the analysis area or degradation of surface water quality from transport of disturbed soils by wind or water. This would be most likely to occur where access roads, crane paths, and buried collector lines cross streams and wetlands because erosion could be exacerbated during construction. Because overhead electrical lines would span streams and wetlands, they are not expected to contribute to increases in sedimentation. Additionally, compaction of soils along roads and turbine pads may reduce infiltration of stormwater to subsurface depths within the Project Area, leading to increased flows across soil surfaces and potentially altering the timing and magnitude of runoff. Disturbed soils could also reach surface water during stormwater events where vegetation has been removed and soils are destabilized and are easily washed into streams and waterbodies. This runoff can increase turbidity and salinity and lead to water quality degradation, which may be further magnified by areas of compacted soils, increased runoff, and therefore greater transport capacity.

ConnectGen has committed to design and construct access roads to minimize disruptions of natural drainage patterns that lead to increased erosion (WQ-7) and to implement a SWPPP (WQ-8) to protect water quality. While ConnectGen has not yet identified a regular SWPPP EPM inspection and maintenance schedule, including reinstallation or adaptive application of EPMs as necessary, the SWPPP will comply with EPA and WYDEQ requirements. Where water crossings are necessary, including crossing of fords, WYGFD and WYSEO requirements would be implemented, and recommendations would be considered where applicable to limit impacts to stream banks and downstream water quality, to include culvert size and placement. Stream protection measures would include using open-bottom culverts to avoid altering stream morphology or removing suitable fish habitat, avoiding the disturbance of steep banks, low-water crossings, and crossing streams perpendicularly to reduce potential for erosion (WQ-11). During construction, excavated material would not be stockpiled near stream banks, ponds, or other watercourse perimeters (WQ-12), and erosion-control barriers would be used (WQ-6) to minimize sediment transport to surface waters. Immediately after construction needs, disturbed ground surfaces would be reclaimed and restabilized by native vegetation (VEG-2) as outlined by the Reclamation Plan that would be developed prior to the start of construction (VEG-1).

Special consideration is given to WOTUS protected under the CWA (section 3.15.1.1, “Federal Regulations”). Several of the ephemeral waterbodies within the siting corridors could be considered non-WOTUS by the ACE and jurisdictional status would need to be determined. If WOTUS could be impacted, ConnectGen would complete a formal WOTUS delineation prior to construction and would use these results to further microsite the Project to avoid or minimize potential impacts to jurisdictional WOTUS, to the extent practicable, and support final CWA Section 404 and EO 11990 permitting requirements (WQ-5).

A representative layout was used to define where Project infrastructure would cross NHD flow lines. Where the NHD flowlines cross the assumed width of disturbance, the total values were summed and reported as linear feet of stream crossings. This approach conservatively estimates stream crossings because the Project layout is not yet finalized. Based on an evaluation of the representative Project layout (i.e., representative physical footprint of all Project facilities that may be necessary for the Project) and overlap of projected disturbance with the NHD layer (USGS 2020b), the Project would include 186 stream crossings for collection lines, crane paths, and access roads within the disturbance area, totaling 23,157.4 linear feet of stream crossing, only 2,063.6 of which would remain during operations (transmission lines and interconnection crossings are not included in the Project operational phase). During Project construction, 17 stream crossings are perennial and 169 are ephemeral or intermittent.

Perennial streams hold water in parts of the bed throughout the year during years of normal rainfall. Channel downcutting has been documented in several perennial streams within the analysis area (ERM 2010a; Tetra Tech 2020m). Increases to erosion at access road crossings could increase the downcutting in these streams if the erosion occurs upstream and if appropriate BMPs are not implemented and maintained. Of the perennial stream crossings, five (552.1 linear feet) would be for crane paths that would be reclaimed following construction, and seven (732.5 linear feet) would be for collection lines that would require installation by trenching. Collection line crossings would be reclaimed after construction and remain in place underground during operations but are not expected to cause disturbance during operations. Of the perennial stream crossings within the siting corridors, two are along existing roads that could require modifications to meet Project safety standards and reduce erosion potential.

Ephemeral and intermittent streams are dry for much of the year because they only flow after precipitation events or during seasons with high runoff and/or groundwater levels. These streams perform a diversity of important hydrologic, biochemical, and geochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. For example, ephemeral streams provide critical hydrologic functions, including moving water, sediment, nutrients, and debris through the

stream network, and provide connectivity to upland areas within the watershed. Ephemeral streams also serve an important role in maintaining downstream water quality by providing cycling and removal of pollutants at the interface of water, sediment, and organic matter, as well as through plant species living along such streams. The role of ephemeral streams in processing and transporting organic matter is also critical to the productivity of downstream receiving waters. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Crossings of these streams may lead to increased erosion and sediment transport to downstream reaches during periods of precipitation runoff and associated stream flows. Adherence to WYPDES construction permit requirements would reduce these impacts. Of the 169 ephemeral or intermittent stream crossings, 26 (3,747.2 linear feet) would be for crane paths and turbine and substation construction disturbance areas, 62 (6,858.1 linear feet) would be for collection lines, and six (940.3 linear feet) would be for overhead transmission lines that would each be fully reclaimed following construction. Seventy-five crossings would be constructed for access roads (9,575.5 linear feet), and these access roads would have interim reclamation completed but would remain in a minimized state during operations (1,930.5 linear feet). Of the access road ephemeral and intermittent stream crossings, 17 are located along existing access roads that could require modifications to meet Project safety standards and reduce erosion potential. The distance associated with each stream-type crossing is detailed in table 3-43. A field survey found that approximately half (94 total) of these NHD-defined ephemeral or intermittent stream crossings are upland swales without defined bed or banks (Tetra Tech 2020m).

Table 3-43. Surface Water Crossings within the Disturbance Area

National Hydrography Dataset Flowline Type/Infrastructure Type/Crossing Type	Project Phase	Number of Crossing Types	Length of Crossing (linear feet)
Perennial Stream/River			
Access road	Construction	5	618.6
Access road	Operations	5 ¹	133.1
Collection line	Construction only	7	732.5
Crane path	Construction only	5	552.1
Total		17	2,036.3
Ephemeral/Intermittent Stream			
Access road	Construction	75	7,645.0
Access road	Operations	75 ¹	1,930.5
Collection line	Construction only	62	6,858.1
Crane path	Construction only	18	1,845.0
Substation	Construction only	1	157.7
Transmission line	Construction only; Overhead only	6	940.3
Turbine construction disturbance area	Construction only	7	1,744.5
Total		169	21,121.1

¹ Access roads for operations are the same access roads listed for construction.

Erodibility risk analysis indicates potential for erosion at stream crossings: 96.7 percent of soils (2,786.5 acres) in the analysis area display a moderate erodibility risk and 0.8 percent (22.1 acres) of soils display a severe erodibility risk; 2.5 percent of soils (72.6 acres) in the analysis area were not rated (figure 3-18) (USGS 2020b). However, only 1.34 percent (38.61 acres) of Project infrastructure is proposed in areas that overlap soils with severe erodibility risk.

The Project Area is located within portions of five HUC 12 subwatersheds that total 152,276.6 acres (table 3-44). There are currently 1,737.6 acres of existing disturbance across these HUC 12 subwatersheds (1.1 percent of HUC 12s). Up to an additional 1,470.8 acres (1.0 percent) of disturbance would occur during Project construction across the HUC 12 subwatersheds, and 184.1 acres (0.1 percent of HUC 12s) of disturbance would remain after interim reclamation during Project operations. Potential disturbance related to Project construction and operation activities within each subwatershed would be minimal compared to the larger HUC 12 areas, as detailed in table 3-44. Similar conclusions can be found in the “Rail Tie Project Reconnaissance Level Assessment Report” (Tetra Tech 2021b).

Table 3-44. Disturbance per HUC 12 Subwatershed Overlapping Project Area

HUC 12 Subwatershed Name	HUC 12	HUC 12 Total Acres	Acres of Existing Disturbance (percentage of HUC 12)	Acres of Potential Project Construction Disturbance (percentage of HUC 12)	Acres of Potential Project Operation Disturbance (percentage of HUC 12)
Fish Creek	101900070402	23,115.3	208.4 (0.9%)	292.0 (1.3%)	38.9 (0.2%)
Harney Creek	101800100405	40,196.5	604.9 (1.5%)	17.8 (<0.1%)	1.4 (< 0.1%)
Lower Dale Creek	101900070404	21,908.2	278.6 (1.3%)	29.5 (0.1%)	2.8 (<0.1%)
Upper Dale Creek	101900070401	28,676.6	234.1 (0.8%)	493.6 (1.7%)	53.3 (0.2%)
Willow Creek	101800100403	38,380.1	411.7 (1.1%)	637.8 (1.7%)	87.8 (0.2%)
Total (percentage of total HUC 12 acreage)		152,276.6	1,737.6 (1.1%)	1,470.8 (1.0%)	184.1 (0.1%)

Source: USGS 2020b.

Previous field investigations described in the “Surface Waters Assessment Report for the Hermosa West Wind Farm Project” were conducted for a different project encompassing the western and approximately half of the Project Area, and results noted in that report detailed that the project was not expected to contribute marked changes in sediment load (ERM 2010a). Though the EPMs included in the Surface Waters Assessment Report are not applicative to this Project, EPMs proposed for this Project have been shown to reduce sedimentation and erosion (e.g., culverts [Morris et al. 2016]; low-water crossings [Gautam and Bhattarai 2018]; and erosion control barriers [WYDOT 2020c]). Additionally, the Project would implement a SWPPP (WQ-8) and support final CWA Section 404 and EO 11990 permitting requirements (WQ-5), which would ensure that erosion inspections and monitoring occur following EPA and WYDEQ requirements to inform management of potential Project impacts to surface water quality. The overall impact of the Project to surface water quality and sedimentation is low due to minimal overall ground disturbance and surface water crossings within the watersheds and implementation of effective EPMs per agency requirements.

Issue Statement #2: How could belowgrade disturbing activities affect groundwater connectivity and availability?

The analysis area for groundwater resources includes any depth that could reach groundwater resources. Project belowgrade-disturbing activities, such as disturbance for turbine foundations and newly drilled wells, could alter groundwater connectivity. These activities could unintentionally partition groundwater resources or impair groundwater boundaries, thereby decreasing or increasing connectivity among aquifers. Electrical collection would be buried approximately 3 to 6 feet below the ground surface and are not anticipated to intersect groundwater resources except at limited locations, such as stream crossings.

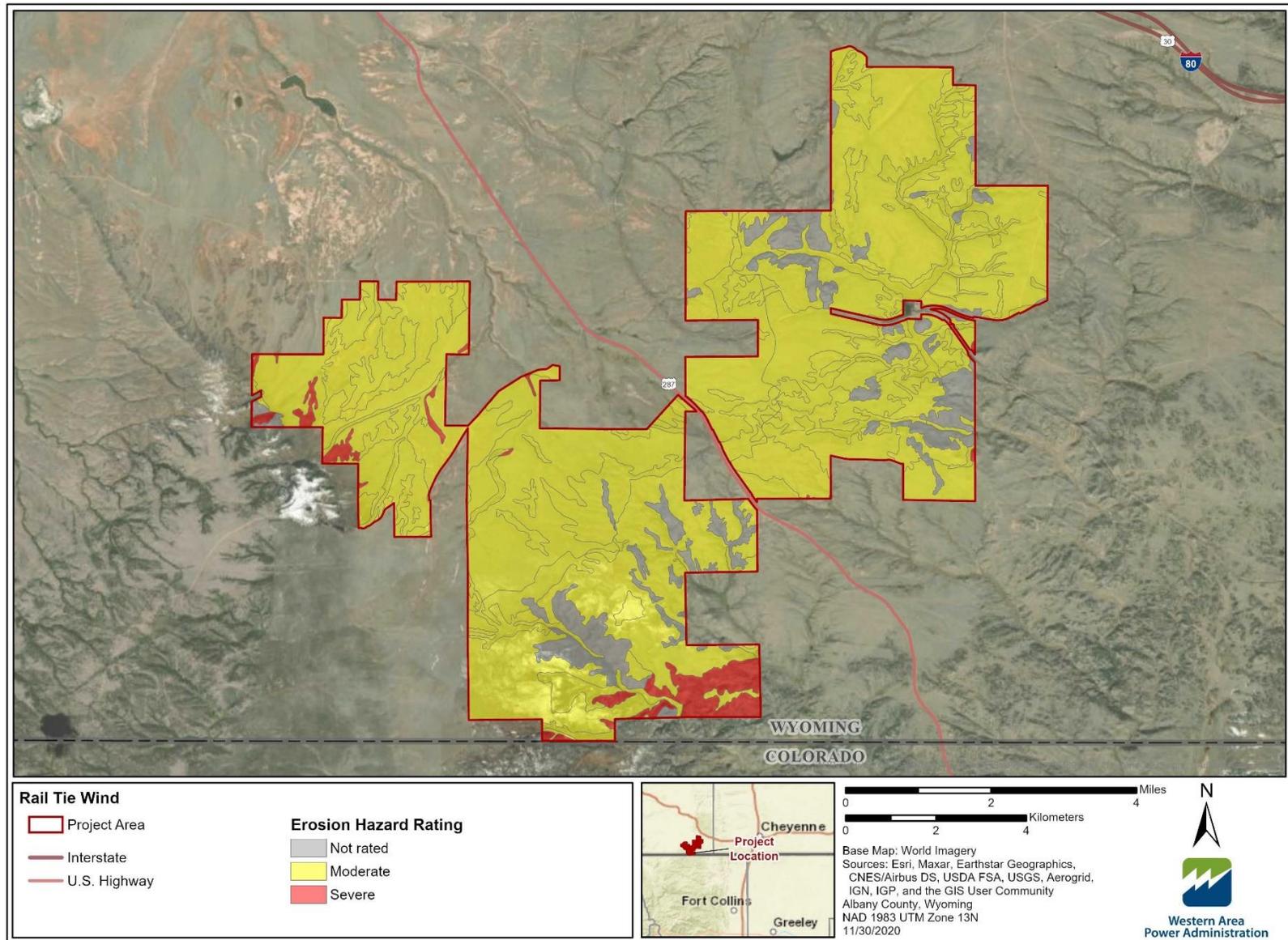


Figure 3-18. Erosion hazard rating.

ConnectGen has committed to specific impact minimization measures to avoid disturbances to groundwater connectivity as a condition of the approved permit from the Wyoming ISC (see section 2.2.6, “Environmental Protection Measures”). The siting corridors overlap with only one permitted spring permit and three permitted wells (figure 3-19; WSGS 2021). ConnectGen would comply with ISC Special Condition #25 should blasting be proposed within 1 mile of any active groundwater well (see table 2-6). Mixing of groundwater between aquifers in the area has also been shown to occur either naturally across faults between aquifers or via existing wells spanning aquifers (Mazor 1990). Surface-disturbing activities are not anticipated to increase groundwater connectivity. Wyoming groundwater data indicate that only the western section of the Project Area overlaps the Paleozoic aquifer, and there are no other adjacent aquifers that may be connected to this aquifer during Project ground-disturbing activities (see figure 3-19; WSGS 2021).

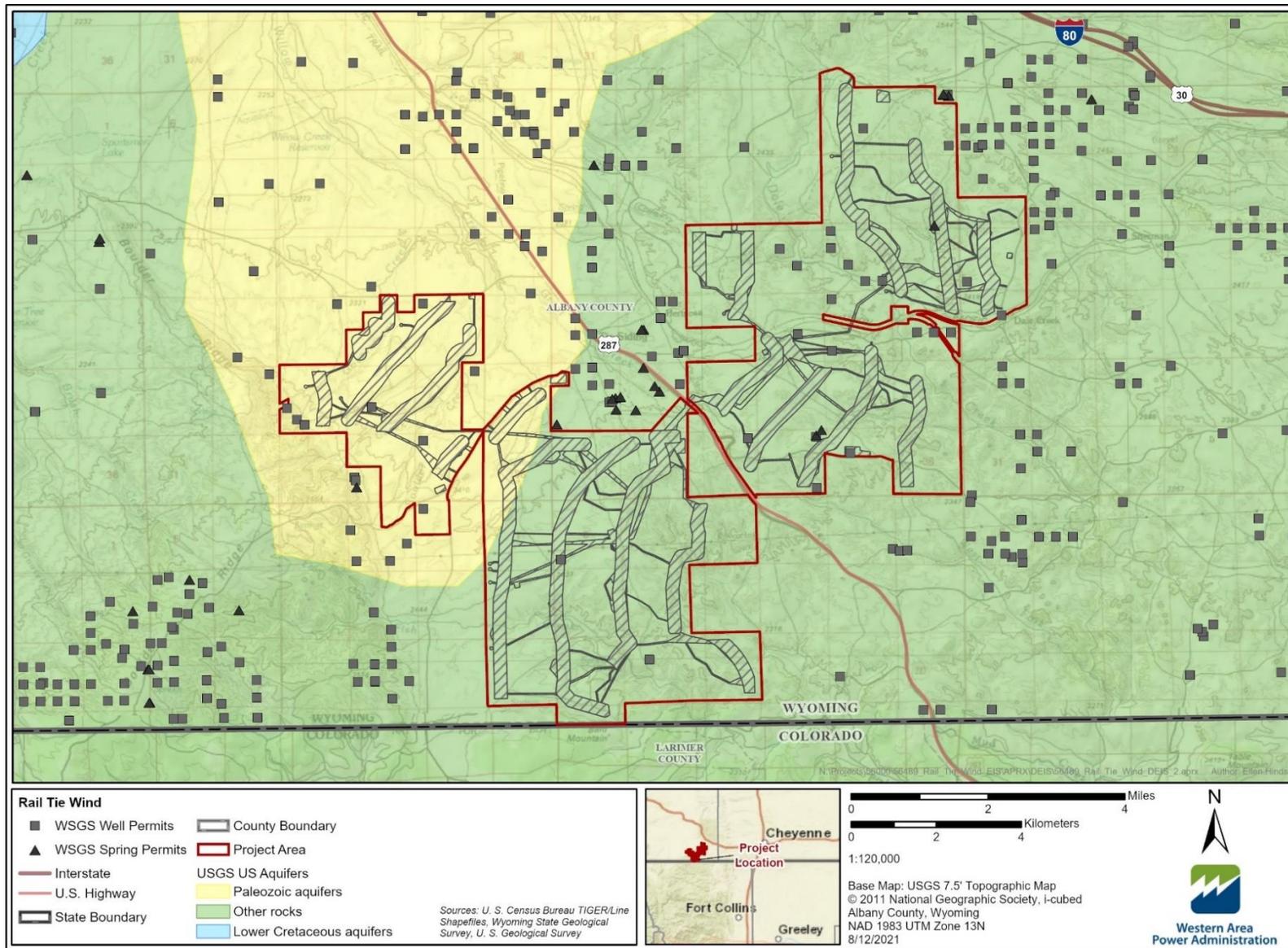


Figure 3-19. Aquifer and groundwater features.

The maximum depth for turbine foundations is 40 feet bgs. The depth to groundwater within the Project Area is variable. Wells in the Project Area are primarily used for domestic and livestock purposes. In the northeastern portions of the analysis area, well depth ranged from 0.0 to 10.0 feet bgs. In the southern and western portions of the analysis area, well depth ranged from 10.0 to 20.0 feet bgs, with a few that ranged from 20.0 to 50.0 feet bgs (Tetra Tech 2020m). Geotechnical investigations in the Project Area detected groundwater at depths greater than 27.0 feet bgs. The geotechnical investigation conducted east of U.S. 287 encountered groundwater at a depth of 48.5 feet bgs at one location and did not encounter groundwater at the other 11 locations, which ranged in total depth from 16.0 to 49.0 feet (Terracon 2020). Geotechnical investigations west of U.S. 287 were conducted at six sites within the Project Area at total depths ranging between 7.5 and 45.0 feet. Groundwater was encountered in only two locations, at a depth of 27.5 and 28.0 feet bgs (Black and Veatch 2009, 2010). Ultimately, dewatering may be required in some areas for turbine foundation construction. A specific dewatering process has not yet been detailed but would be consistent with WYDEQ requirements and WYSEO standards to avoid adverse impacts to groundwater resources. For example, it is anticipated that dewatering would be temporary and would require a WYPDES general permit for temporary discharges, when discharges would be to upland areas in the same subwatershed to return water volume to the local groundwater system. EPMs that are consistent with WYDEQ requirements, such as implementation of an SWPPP (WQ-8), would be implemented to avoid and minimize discharge erosion.

Belowgrade-disturbing activities would not likely impact groundwater availability, such as aquifer recharge or discharge. Although there is little information about areas of groundwater discharge and recharge, aquifers in this area have been reported to recharge quickly (ERM 2010a) at a rate of about 75 to 150 centimeters per year, and therefore loss in groundwater availability would likely be minimal.

Issue Statement #3: How would surface- and subsurface-disturbing Project activities affect sedimentation or the hydrology of wetlands? What is the net loss of wetland areas?

The analysis area for wetland resources includes the siting corridors plus a 300-foot buffer. Surface- and subsurface-disturbing activities associated with the Project could lead to sedimentation or chemical enrichment of wetlands or alteration of wetland hydrology. This occurs most frequently at wetland crossings where erosion could be exacerbated or wetland connectivity altered and during stormwater events where vegetation has been removed, destabilized, and is easily washed into wetlands. This runoff could increase turbidity, salinity, and lead to wetland water quality degradation. Additionally, chemical enrichment caused by materials introduced during construction (e.g., salts, nitrates, metals, etc.) may occur at wetland crossings or through stormwater transport. Similar impacts may occur in areas of disturbance to shallow groundwater flows, including alluvial flows and/or groundwater-dependent ecosystems and supporting hydrology, such as hydric soils, that may be connected to wetland hydrology within the Project Area.

ConnectGen would design the Project to avoid wetlands to the extent practicable, to use existing water crossings when possible, and would continue to change Project design through micro-siting to further avoid and minimize impacts to wetlands (WQ-1). ConnectGen has also committed to the conservation of natural woody material associated with wetlands (WQ-2), use of wooden construction matting within disturbed wetlands, establishing erosion-control barriers (WQ-6), signage and flagging to identify wetland boundaries (WQ-4), and restricting the access of vehicles and construction equipment in the disturbed area and wetland buffer (WQ-3). All construction crossings would be removed and immediately reclaimed post-use, minimizing the potential for impacts to wetlands. ConnectGen has also committed to implementing a SWPPP (WQ-8) to minimize stormwater runoff from reaching wetland resources adjacent to or downstream of the Project Area, including stockpiling excavated material away from wetlands (WQ-12) and using erosion-control barriers (WQ-6) to minimize sediment transport to surface waters. If any wetlands are considered WOTUS and a preconstruction notification is needed, ConnectGen would address

minimization, restoration, and mitigation in the notification permitting process. ConnectGen would secure the Federal and State permits as needed (WQ-5). EPMs described in Issue Statement #5 below would be implemented to further reduce the potential for chemical enrichment to wetlands and associated hydrology.

The construction disturbance footprint crosses a total of 9.9 acres of wetlands (table 3-45). Most of these wetland features are associated with the named streams and tributaries in the Project Area. Construction access roads would cross 4.6 wetland acres, electrical connection lines would cross 3.1 wetland acres, crane paths would cross 1.9 wetland acres, and turbine construction footprints would overlap 0.4 wetland acre. Project operations access roads would cross 0.8 wetland acre. The wetlands crossed by the siting corridors are detailed in table 3-45. The Project is located within the Laramie River-Harney Creek and Dale Creek subbasins that are hydrologically connected to the North and South Platte Rivers (Traditional Navigable Water) downstream; therefore, these wetlands could be considered WOTUS and subject to CWA Section 404 regulations. Impacts to wetlands are anticipated to exceed 0.5 acre. If final Project layout and impacts result in dredge or fill activities in wetlands or waterbodies, ConnectGen would comply with Section 404 permitting requirements for any potential impacts to wetlands and/or WOTUS. The analysis area, including proposed construction and operations boundaries, combined with the methodology used to estimate impacts, results in a conservative estimate of Project disturbance. ConnectGen would also continue to microsite infrastructure to avoid impacts to wetlands detailed herein, consistent with EPM WQ-1, which states “The Project will identify, avoid, and/or minimize adverse effects to wetlands and waterbodies.”

Potential surface or subsurface impacts to shallow groundwater resources and/or groundwater-dependent ecosystems and supporting hydrology, such as hydric soils, that are connected to wetlands are not anticipated. Non-turbine related Project activities are expected to occur on 599.6 acres with depths to groundwater of 0 to 10 feet. Turbine siting corridors occur on 4,427.7 acres with depths to groundwater of 0 to 10 feet. Although geotechnical investigations and domestic wells have shown depths much greater than 0 to 10 feet bgs, a depth of 10 feet bgs was used to determine the maximum acres with potential to contact groundwater. These are only 2.3 percent and 17 percent of the Project Area, respectively, and are not anticipated to cause measurable disturbances to groundwater, groundwater-connected or -dependent systems, or those connected to wetlands. The majority of turbine siting corridors, which may be associated with the greatest amount of subsurface disturbance, have been sited in higher spots away from subsurface water resources with depths to groundwater of 10 to 50 feet, and are therefore not anticipated to impact shallow subsurface flows and/or groundwater dependent ecosystems and supporting hydrology such as wetlands. Additionally, less than 0.1 percent (21.8 acres) of the Project Area occurs on hydric soils; 1.4 acres of hydric soil overlap with open water and 0.5 acre overlap with palustrine emergent wetland, both of which are water resources that would be avoided or impacts minimized using EPMs described above. It is unlikely that Project activities would have a measurable impact on wetlands through water resources found in hydric soils.

Table 3-45. Wetland Disturbance by Wetland Type and Project Stage

Wetland Type	Construction Disturbance (acres)	Operations Disturbance (acres)
Freshwater emergent	5.3	0.6
Freshwater forested/shrub	3.0	0.2
Freshwater pond	0.5	0.0
Riverine wetlands	1.1	< 1.0
Total	9.9	0.8

Source: Tetra Tech (2020m).

Fens are peat-forming wetlands that are inundated for most of the year and have soils rich in total organic carbon. They are considered “unique and irreplaceable” and a “Resource Category 1” with a mitigation goal of “no loss of existing habitat value” by the FWS Region 6 (FWS 1999). Wetlands with fen characteristics were identified during field delineation surveys (Tetra Tech 2020m). Approximately 1.7 acres of potential fen wetlands were delineated within the construction disturbance footprint, and 0.2 acre of potential fen wetlands were delineated within the operations disturbance footprint. ConnectGen would identify wetland boundaries, including fen wetlands, on construction plans and flag in the field to avoid and minimize adverse impacts during construction (WQ-1 and WQ-4).

Issue Statement #4: How would water withdrawals for Project use affect water quality and surface water flows (particularly depletions in the Platte River Basin) and availability and/or groundwater volumes or availability?

Project-related water withdrawals could reduce the volume of surface water and, thereby, alter surface water resource flow and velocity. Decreases in surface water volume could impact surface water quality by increasing retention time, temperature, the potential for stagnant water, concentration of dissolved and suspended solids, and eutrophication.

It is anticipated that any water-related activities associated with the Project would be covered under the Wyoming Depletions Plan. Though the geological source for Project-related water use has not yet been determined, ConnectGen has identified that it would come from existing or new groundwater wells within or proximate to the northwest Project Area within the “Green Area” (water resources that do not connect to the Platte River system) or purchased from an off-site source in Albany County to avoid any depletions to the Platte River system (Cowley 2020; Kuba 2020). Water for Project use would be drawn from a permitted source(s) and would not exceed the permitted amount. Once final water sources are identified for Project construction, ConnectGen would coordinate with the FWS on any source that may be hydrologically connected to the Platte River Basin to determine the need for consultation and completion of a tiered biological opinion under the Wyoming Depletions Plan.

ConnectGen would consult with the WYSEO prior to finalizing groundwater use sources, including the drilling of any new groundwater wells (WQ-14), to confirm that no new depletions would result from Project activities. ConnectGen has conservatively estimated that water consumption for the Project would not exceed 200 acre-feet during the 18-month construction period, and 2 acre-feet per year during operations.

Issue Statement #5: What Project activities increase the risk of surface or groundwater contamination from spills, pesticide use, or other chemical storage?

Project equipment refueling and storage and use of hazardous materials and pollutants, such as oil, fuel, hydraulic fluid, herbicides, and even metals, pose a potential risk to surface and groundwater quality. Spills, metal use and corrosion, or herbicide use too close to water resources could flow directly into water resources, and stormwater events could wash contaminants from spills or herbicide application downslope to surface waters or increase vertical flow to groundwater. These events may also affect shallow aquifers, which are sensitive to salts and metals that may be introduced to the water table through infiltration following surface disturbance and construction.

ConnectGen has committed to performing construction activities that would prevent accidental spillage of contaminants to water resources (WQ-9). Equipment would be parked and maintained outside of wetland boundaries (WQ-5) to avoid the potential for direct spills. Water quality BMPs would also be implemented at waterbody crossings to minimize contamination of water resources (WQ-13). A SWPPP would be implemented to further minimize the potential for spills and herbicides to flow into water

resources (WQ-8). While ConnectGen has not yet identified a regular SWPPP inspection and maintenance schedule for EPMs relevant to spills, including reinstallation or adaptive application of EPMs as necessary, the SWPPP would comply with EPA and WYDEQ requirements. For example, herbicides would be applied per label instruction and follow Federal, State, and local laws to avoid impacts to water quality (VEG-8).

For hazardous materials stored on-site, ConnectGen has committed to avoiding storage locations in potentially sensitive areas (HAZ-2) and would use secondary containment (HAZ-3). Prior to construction, a Spill Prevention Control and Countermeasure Plan would be developed, and trained spill containment crews would respond to accidental releases or spills (HAZ-5). Per Wyoming Water Quality Rules and Regulations, Chapter 4, the WQD would be notified of any oil or hazardous substances that have been released and that enter, or threaten to enter, waters of the State.

The surface and groundwater resources within the analysis area that could be impacted by contaminants are described in the Impact Statements 1, 2, and 3 above.

Issue Statement #6: Will groundwater be contaminated from wind turbine generator foundation construction?

Excavation of wind tower foundations could potentially increase groundwater exposure to spills in or near the disturbance area. The siting corridors intersect known aquifer boundaries with water depths of less than 40 feet bgs; the turbine corridor has approximately 5,000 acres where boring could occur. ConnectGen has committed to performing construction activities that would prevent accidental spillage of contaminants to water resources (WQ-9). Equipment would be parked and maintained away from water resource boundaries (WQ-5) to avoid the potential for direct spills. ConnectGen would implement a SWPPP (WQ-8) to reduce potential contaminants from flowing into (surface and ground) water resources. Potential Project impacts to groundwater are described further in Impact Statements #2 and #4, above.

3.15.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to wetland and water resources would occur from the Project and the existing conditions and trends for the resource would continue.

3.15.6 Wetland and Water Resources Conclusion

Previous field investigations described in the Surface Waters Assessment Report for the Hermosa West Wind Farm Project noted that the project was not expected to contribute marked changes in sediment load (ERM 2010a). The Project would not reduce water availability. Project activities would not connect groundwater aquifers and aquifers in the Project Area have a high recharge rate. Construction would disturb up to approximately 9.9 acres of wetlands during construction and 0.8 acre of wetlands during operations. The Project would include 186 stream crossings for a total of 23,157.4 linear feet. Of these stream crossings, 17 would be perennial and 169 would be ephemeral or intermittent. Several of the ephemeral waterbodies within the siting corridors could be considered non-WOTUS by the ACE and jurisdictional status would need to be determined. If WOTUS could be impacted, ConnectGen would complete a formal WOTUS delineation prior to construction and would use these results to further microsite the Project to avoid or minimize potential impacts to jurisdictional WOTUS, to the extent practicable, and support final CWA Section 404 and EO 11990 permitting requirements (WQ-5). ConnectGen has committed to minimizing and mitigating potential impacts to wetlands and WOTUS through use of EPMs and would comply with Section 404 permitting for any potential impacts to

wetlands and/or WOTUS. ConnectGen has committed to spill containment and hazardous materials storage and use measures to minimize potential impacts to surface water and wetlands. Based on the analyses of these issues, no significant impacts would be anticipated to this resource.

3.16 Wildland Fire

This section describes the existing context and characteristics of the wildland fire environment in the Project Area, including fire history, vegetative fuel conditions, potential fire behavior and capacity for fire response, and assesses potential impacts to these resources from the construction and operations of the Project. Additional wildland fire analysis is provided in the Rail Tie Wind Wildland Fire Background process memorandum (SWCA 2021).

3.16.1 Regulatory Background

The following Federal, State, and local regulations establish requirements, standards, and guidelines related to wildland fire and are applicable to the Project:

- The National Fire Protection Association 850 “Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations” (National Fire Protection Association 2020).
- Wyoming currently enforces the National Electrical Code, 2020 Edition (Wyoming Department of Fire Prevention and Electrical Safety 2020). Provisions under this code are regulated by the Wyoming Department of Fire Prevention and Electrical Safety.

Additional information on the health and safety regulatory background applicable to the Project is included in the “Rail Tie Wind Project Health and Safety Technical Report” (Tetra Tech 2020j).

3.16.2 Data Sources

Data sources used to characterize existing (i.e., baseline) conditions and analyze wildfire ignitions include the following:

- Interagency Fuels Treatment Decision Support System web application (Interagency Fuels Treatment Decision Support System 2020)
- Academic and peer-reviewed literature sources
- State and local governmental resources

3.16.3 Analysis Area

The following analysis areas have been identified to evaluate the extent to which potential impacts from the Project could occur on wildland fire resources and conditions:

- Fire history: This analysis area includes the Project Area plus a 20-mile buffer. This extent demonstrates the variation in fire frequency and fire size on adjacent lands relative to fire occurrence in the Project Area.
- Fuels and fire behavior: This analysis area includes the Project Area.

3.16.4 Baseline Description

3.16.4.1 Fire History

Fire frequency and size are influenced by various abiotic and biotic factors, including topography, elevation, seasonal weather patterns, climate, vegetative structure and composition, fuel moisture content, and fuel loading and continuity.

Analysis in the 2019 Wyoming 3 Region Hazard Mitigation Plan (Albany County Emergency Management Agency and Carbon County Emergency Management Agency 2019), suggests that most of the Project Area is at very low, low, and moderate wildland fire potential. According to fire history records, since 2000, three fires have occurred within or on the boundary of the Project Area (table 3-46).

Table 3-46. Previous Fire History

Fire Name	Date	Fire Size (acres)	Cause
Gilbert Lake Fire	2000	150.0	Natural
Boulder Ridge Fire	2004	0.1	Natural
Dale Creek Fire	2007	1.0	Human

Fire occurrence in the Project Area has been sparse relative to adjacent lands in the wider analysis area (SWCA 2020b). Previous fire occurrence and large fire growth have been dictated by fuel composition, with larger fires being associated with timber fuels, located more than 20 miles from the Project Area.

3.16.4.2 Ignitions

In steppe landscapes throughout the Intermountain West, the frequency of lightning ignitions varies spatially and is influenced by geography (i.e., climate and weather patterns), topography, and fuel characteristics. Human-caused ignitions in sagebrush communities are generally associated with increased human activity along roads, in residential areas, or in areas frequented for recreation (Innes and Zouhar 2018).

Although risk of fire associated with wind turbines is not well documented (Uadiale et al. 2014), available data show that after blade failure, fire is the second most common cause of accidental failure in turbines. Since the 1980s, it is estimated that 10 to 30 percent of wind turbine failures are caused by fires (Firetrace International 2019). Fires in wind turbines are most often caused by lightning strike, electrical malfunction, mechanical malfunction, or issues with maintenance. Once the fire is detected, intervention is limited because almost all turbine fires occur in the nacelles and are too high for firefighting action (Hertenberger et al. 2009); firefighters often focus on limiting fire spread by removing fuels adjacent to the turbine.

Although wind turbine fires have occurred in Wyoming and caused wildfires, including the 1,600-acre Cowboy Fire in southwestern Wyoming in 2017 (Green 2017), reportedly, only one in 1,700 to 2,000 wind turbines catch fire each year globally, therefore, the potential for a single turbine to catch fire is relatively rare (less than 1 in 2,000) (Firetrace International 2019). New technology in fire trace systems that automatically detect and suppress fires in wind turbines at their source are continuously developed and improved upon to further reduce this risk (Firetrace International 2019).

3.16.4.3 Fuels and Fire Behavior

Fuels is the term given to both live and dead vegetation that is available for combustion and includes grass, shrubs, and timber. Fire behavior under existing conditions in the analysis area can be estimated based on fuel composition using fire behavior models (FARSITE, FlamMap, BehavePlus, and FireFamily Plus housed within the Interagency Fuel Treatment Decision Support System) (SWCA 2020b).

Most of the Project Area is modelled as exhibiting low fireline intensity (0–5 British thermal units/second/foot) and low to moderate flame lengths (1–8 feet), but high rates of spread (2–50 chains/hour). The Project Area is composed of primarily grass and shrub fuels that exhibit more moderate fire behavior than is experienced in timber fuels located in the wider region. As a result, fires occurring in these fuel types are typically more easily contained at a smaller size, as exhibited in the fire history data (SWCA 2021).

Fire regimes in the Project Area are described in the Rail Tie Wind Project Wildland Fire Background process memorandum (SWCA 2021). Historic fire regimes in sagebrush communities of the Project Area are characterized by infrequent but stand-replacing fires, heavily influenced by the presence of fine fuels. Disturbed areas are more prone to infestations of cheatgrass, which can increase fire frequency.

3.16.4.4 Fire Response

Fire response resources for the Project Area are described in section 3.10.4.1, “Emergency Service Providers,” and in the “Health and Safety Technical Report” (Tetra Tech 2020j).

3.16.5 Impacts to Resource

This section describes the effects on wildland fire conditions and response resources from the construction and operations of the Project.

3.16.5.1 Impact Indicators

Indicators as to whether a Project-related activity would result in adverse effects on wildland fire resources include:

- Increased human-caused or lightning-caused ignitions resulting from construction and operations of the Project.

The primary assumption for analyzing impacts to wildland fire resources is that all design features and EPMs would be implemented (section 2.2.6, “Environmental Protection Measures”) and would effectively minimize or mitigate wildland fire ignitions and wildland fire risk.

3.16.5.2 Methods of Analysis

The following steps were completed to analyze potential impacts to wildland fire:

- Fire history was gathered from various sources to determine previous fire occurrence, frequency of ignitions, and potential for large fire spread.
- Fuels were gathered from the LANDFIRE database and analyzed within the Project Area to provide baseline conditions for potential fire behavior in the event of an ignition.
- Fire response information is presented in section 3.10, “Public Health and Safety.”
- Scientific literature was used to inform the analysis and provide rationale for determining the effects of the Project.

3.16.5.3 Proposed Action

Issue Statement #1: Would equipment used for Project construction increase the risk of wildfire ignition?

The analysis area for fire history and ignitions is a 20-mile buffer around the Project Area. Potential construction-related effects from the Project on wildland fire ignitions include increased incidence of ignitions from vehicle and equipment use, potential ignitions from cigarettes or other ignited materials, use of construction equipment in dry areas that could spark a fire, accidental ignition of flammable liquids, and mechanical malfunction. Vegetation disturbance can result in infestation by cheatgrass, which can increase the frequency of fires and generate increased fire spread. Cheatgrass infestations associated with construction and operation would be mitigated through the application of EPMs for weed management (see table 2-6), including implementation of an Integrated Weed Management Plan that identifies appropriate controls to avoid, minimize, or treat the spread of noxious weeds by the Project (VEG-4), and preconstruction surveys of the Project footprint to identify existing locations of noxious weeds at which appropriate controls will be applied to Project activities (VEG-5).

Although human activity and equipment use would be elevated in the Project Area, particularly during construction, the application of EPMs to address human-caused ignitions would mitigate the potential for elevated ignitions when compared to baseline conditions, as discussed below. Public access to the Project Area and specific Project facilities would be restricted through existing fences, gates, or other access controls to prevent unauthorized entry and potential for ignition from the public (PHS-12).

The Project design would be constructed and operated in compliance with appropriate zoning and siting and environmental regulations (GEN-1), in addition to fire-related safety standards and regulations. ConnectGen has developed an Emergency Response Plan in coordination with the Albany county fire warden, emergency management coordinator, and county sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures, response, and evacuation would be developed in coordination with Laramie Fire Department and Tie Siding Volunteer Fire Department (PHS-2) and would be incorporated into the Emergency Response Plan (PHS-14).

To minimize the risk of ignitions from staff during construction and throughout the life of the Project, ConnectGen would conduct worker training in emergency response and health and safety requirements and procedures, fuel vehicles in accordance with procedures to minimize fire risks (PHS-3), use PPE, operate equipment and infrastructure in accordance with manufacturer's parameters, and conduct routine inspections on all Project facilities and infrastructure to identify and respond to potential fire risk (as described under PHS-15). In compliance with the Albany County WECS Permit, a fire suppression system would be installed inside the nacelle of each turbine to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

The electrical design of the Project would comply with Wyoming electrical safety codes and standards (Wyoming Department of Fire Prevention and Electrical Safety 2020), which include the enforcement of the National Electric Code to reduce the risk of equipment-related fires. All wind turbines and associated electrical equipment would be constructed with nonflammable material around the base of the equipment to reduce the spread of fire if equipment were to ignite (PHS-17). All construction and maintenance vehicles would be equipped with fire extinguishers to allow timely response to equipment fires, and fire suppression equipment would be maintained in the Project Area during construction and operations (PHS-18 and/or PHS-19). If an on-site fire were to occur, Project personnel would alert the Laramie Fire Department and Tie Siding Volunteer Fire Department (PHS-18), in accordance with an implemented Emergency Response Plan. Local firefighters would respond to confine and contain the fire. Aggregate roads proposed for the Project would serve as fuel breaks in the low-growing vegetation types present in the Project Area and provide for greater accessibility for land-based firefighting efforts.

While local fire departments would provide initial attack responsibility for wildfire in the vicinity of the Project Area, fire departments operate within a much larger network of fire response resources, mobilized through Federal and State dispatch. These resources would be dispatched to provide immediate suppression of any fires occurring in association with the Project or in the surrounding region.

Construction activities could provide a source for wildland fire ignition; however, the Project has been designed to minimize the risk that such fire would harm residences and public roads. The Project design would be constructed and operated in compliance with appropriate zoning and siting and environmental regulations (GEN-1). Appropriate setbacks have been established between Project infrastructure and residences and public roads to provide safe distances from areas potentially occupied by members of the public. Additionally, Albany County WECS special condition #1 requires turbines to be set back 1 mile from occupied residences, thereby further distancing construction activities from occupied areas.

Issue Statement #2 How would the Project affect future potential for and frequency of lightning-ignited wildfires?

The incidence of turbine fires globally is rare (less than 1 in 2,000 annually) and historically, wildfire ignitions (both natural and human) have been relatively low in the Project Area, especially when compared to adjacent lands that are at a higher elevation. Research suggests operation of wind turbines may cause “upward lightning,” when the turbine itself generates upward lightning that can trigger return strikes up to several miles away as it reaches the charge in the cloud above (Montanya et al. 2014). Lightning-caused wildfire ignitions due to presence of infrastructure would be mitigated through the use of EPMs and design features, including lightning protection systems that would reduce the chance of fires igniting from lightning strikes (PHS-16). ConnectGen would implement a SCADA system located on-site in the O&M building (section 2.2.1.6, “Supervisory Control and Data Acquisition System”) to monitor operation of the facility. This system would be run remotely but would detect fire occurrence impacting infrastructure and could be used to shut down operations in the event of an emergency such as a fire. In compliance with the Albany County WECS Permit, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

Fires occurring within the nacelle of a wind turbine would likely not be within the capabilities of the Tie Siding Volunteer Fire Department or the Vedauwoo Volunteer Fire Department; however, sensors installed within the wind turbine would detect interior fires and immediately shut down machinery. The Albany County WEC Permit requires fire suppression systems to be installed in all turbines (see table 2-6). In the unlikely event that a turbine fire were to ignite nearby vegetation, local firefighters would respond to confine and contain the fire to the individual turbine site and keep such a fire from spreading. Aggregate roads proposed for the Project would serve as fuel breaks in the low-growing vegetation types present in the Project Area and provide for greater accessibility for land-based firefighting efforts.

While local fire departments would provide initial attack responsibility for wildfire in the vicinity of the Project Area, fire departments operate within a much larger network of fire response resources, mobilized through Federal and State dispatch. These resources would be dispatched to provide immediate suppression of any fires occurring in association with the Project or in the surrounding region.

3.16.5.4 No Action Alternative

Under the No Action Alternative, WAPA would not authorize the interconnection request for the Project, and the Project would not be connected to the existing WAPA transmission system. No new disturbance to the wildland fire environment would occur from the Project and the existing conditions and trends for wildfires would continue.

3.16.6 Wildland Fire Conclusion

Construction and operations of the Project would increase the potential risk of wildfire ignitions. The Project would comply with Wyoming electrical safety codes and standards, including the National Electric Code, and would implement setbacks and other measures that would mitigate this risk. In compliance with the Albany County WECS Permit, a fire suppression system would be installed inside the nacelle of each turbine to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels (see table 2-6). The incidence of turbine-ignited fires is rare, and wildfire ignitions in the Project Area are infrequent. A SCADA system would detect any fire impacting infrastructure and shut down affected systems. Local fire departments would respond to fires in the Project Area to prevent fire from spreading and extinguish them. These response resources would be supported by a large contingent of Federal and State fire responders through established mutual aid agreements. Based on this analysis, no significant impacts to wildland fire would be anticipated.

CHAPTER 4. CUMULATIVE IMPACTS

This section considers the impacts from the Project that would overlap with other projects in both time and space.

4.1 Physical and Temporal Boundaries of Cumulative Impacts

There are several extents of physical space considered in the cumulative impacts area that generally coincide with the different analysis areas considered for the direct and indirect Project impacts. These extents are discussed below:

- The Project siting corridors are the smallest extent considered and coincide with the resources that would be affected by direct ground disturbance, such as soils, vegetation, nongame, and small game species.
- The Project Area coincides with resources that would be affected by construction and operation of the Project due to factors such as increased human presence and noise, such as big game species, land use, and public health and safety.
- An area that includes a 10-mile buffer around the Project Area coincides with the cultural resources analysis area. This area includes sites eligible for or listed on the NRHP that could be affected through introduction of visual or other intrusions into the setting of a historic property or in alteration of the historic feeling of the property, and that must be considered by Section 106 of the NHPA. This area also includes prehistoric, historic, or culturally significant sites identified by Native American tribes that could be affected.
- An area that includes a 30-mile buffer around the Project Area coincides with the visual resources analysis area.
- An area that includes a 50-mile buffer around the Project Area coincides with the recreation resources analysis area.

The temporal aspect of this analysis includes two distinct phases of the Project: the construction phase, which would occur during 2022 and 2023, and the operations phase, which would occur from 2023 into the future until the point in time when the Project would have served its useful life and would be decommissioned, which would be expected to be approximately 35 years.

4.2 Past and Present, and Reasonably Foreseeable Future Actions

Past and present actions in the cumulative impacts area include a diverse array of actions that cannot all be individually listed but that can generally be characterized as rural in nature. These actions consist more specifically of grazing and ranching activities; transportation developments such as county roads, highways, and railroads (and including snow management); utility development such as other wind-energy conversion projects, high-voltage transmission lines, electrical distribution lines, telephone lines, and communication towers; residential and commercial/retail developments; mining operations (kimberlite and gravel operations); and urban development within the city of Laramie.

Possible reasonably foreseeable future actions (RFFAs) were identified in the Determination of Reasonably Foreseeable Actions Considered in Cumulative Impacts Analysis process memo, dated August 17, 2020 (SWCA 2020c). Potential RFFAs were identified through an internet search, including pertinent Federal, State, and local agency and municipality websites and comments received during the public scoping period.

Three criteria are required in order for an RFFA to be included in the cumulative impacts analysis:

1. The future action and/or impacts from the action must spatially overlap the corresponding direct and indirect effects analysis area for the Project.
2. The future action and/or impacts from the action must temporally overlap the Project and/or the impacts from the Project.
3. The future action must be “reasonably foreseeable.” For the purpose of this EIS the interdisciplinary team considered Federal and non-Federal activities that are not yet undertaken but for which there are existing decisions, funding, or identified proposals as RFFAs.

The RFFAs included in the cumulative impacts analysis are provided in table 4-1 below.

Table 4-1. Reasonably Foreseeable Future Actions Included in Cumulative Impacts Analysis

Project	Description	Spatial Overlap	Temporal Overlap
WYDOT Pavement Rehabilitation Project I805179	A 6.23-mile pavement rehabilitation project to take place on Interstate (I) 80 between Laramie to Cheyenne. Vedauwoo West/I-80 Structure No. AXU, AXV, AXW, AXX.	Within 10-mile buffer	2022
Roundhouse Wind Energy Project	300-MW wind project, including 120 wind turbines, two substations, one O&M building, and a 19-mile 230-kV transmission line from the project substation to the Platte River Power Authority Rawhide Substation in Larimer County, Colorado. Built in two phases. Phase I consists of 82 wind turbines supplying 225 MW of electrical generation. Construction on Phase I of the project was completed and began commercial operation in June 2020. Phase II of the project is currently in the permit phase and is seeking an amendment to the Wyoming Industrial Siting Permit granted by the ISC. The approved permit amendment would allow for the construction of Phase II of the project, which consists of an additional 34 turbines.	Within 10-mile buffer	<u>Construction</u> Phase I: Complete Phase II: June–December 2022 <u>Operation</u> 2020–2052
Corriedale Wind Energy Project	52.5-MW wind project consisting of 21 wind turbines. Located 6 miles east of Cheyenne.	Within 30-mile buffer	<u>Construction</u> 2020 <u>Operation</u> 2021–2051
WYDOT Projects	Road work projects within the city of Laramie. Traffic system work, new roadway construction, sanitary sewer installation, pavement rehabilitation, and safety improvements.	Within 30-mile buffer	2022–2024
I-25/I-80 Interchange Project	I-25/I-80 interchange upgrades and replacement of I-25/Lincolnway interchange. Includes the construction of elevated flyover ramps, bridges, new on- and off-ramps, and realignment work.	Within 30-mile buffer	2021–2030
F.E. Warren Air Force Base Projects	Projects located at the F.E. Warren Air Force Base include the construction of a new industrial building and renovation and construction work at one of the base's entry points (gate 5). In addition, air shows are held at the base in summer.	Within 30-mile buffer	2020–2022

Project	Description	Spatial Overlap	Temporal Overlap
High Plains and McFadden Ridge Wind Energy Project	The project consists of 125 wind turbines and was constructed in three phases. The third phase of the project is expected to be in operation by the end of 2020.	Within 50-mile buffer	<u>Construction</u> 2008–2020 <u>Operation</u> 2010–2035
Two Rivers and Lucky Star Wind Project	The project will be developed in two phases: the Two Rivers Wind Phase and the Lucky Star Wind Phase. The Two Rivers Wind Phase comprises the development of four wind generation facilities (Two Rivers I, II, III, IV). The Two Rivers Phase IV and Lucky Star Wind Phase are located within the 50-mile buffer; the remainder of the project is outside the buffer. Two Rivers Phase IV is a proposed 280-MW facility and would include up to 77 wind turbines. Lucky Star Wind Phase is a proposed 500-MW facility and would include up to 200 wind turbines.	Within 50-mile buffer	<u>Construction</u> 2021–2023 <u>Operation</u> 2022–2053

Source: SWCA (2020c).

4.3 Cumulative Impacts by Resource

4.3.1 Aesthetics and Visual Resources

Although there may be some incremental cumulative impacts to aesthetics and visual resources during the construction phase from the additional equipment and possible fugitive dust generation, the main effect to visual resources would result at areas where multiple new wind developments would be visible. The area where this would be a concern is east of the Project Area toward the other wind developments, including the Roundhouse Wind Project and the Corriedale Wind Project (see figure 4-1). Multiple residences are in this area, and in general, the cumulative impact would remain constant where homes closest to the Project would have views of the other projects in the distance and where homes closest to the other projects would have the view of the Project in the distance. The distance between the nearest edges of this Project and the other two is approximately 10 to 15 miles.

4.3.2 Air Quality and Climate

Emissions of air pollutants would increase during the construction phase when construction on other RFFAs would cause an incremental cumulative impact. But upon completion of the construction phase, operation of the Project would offset emissions from other projects by meeting power demand from a non-carbon-emitting source.

4.3.3 Aquatic and Terrestrial Wildlife and Special-Status Wildlife Species

Past and present actions within the cumulative impacts area for aquatic and terrestrial wildlife were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.4 Avian and Bat Species

Past and present actions within the cumulative impacts area for avian and bat species were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.5 Cultural Resources and Native American Concerns

Cumulative impacts to cultural resources would be similar to those discussed under aesthetics and visual resources because they would be visually based. Sites located in the area that would experience cumulative impact to their setting include the Ames Monument NHL, as well as the linear cultural resources affected by the Project such as the Overland Trail, Historic Lincoln Highway, and Cheyenne Pass Road.

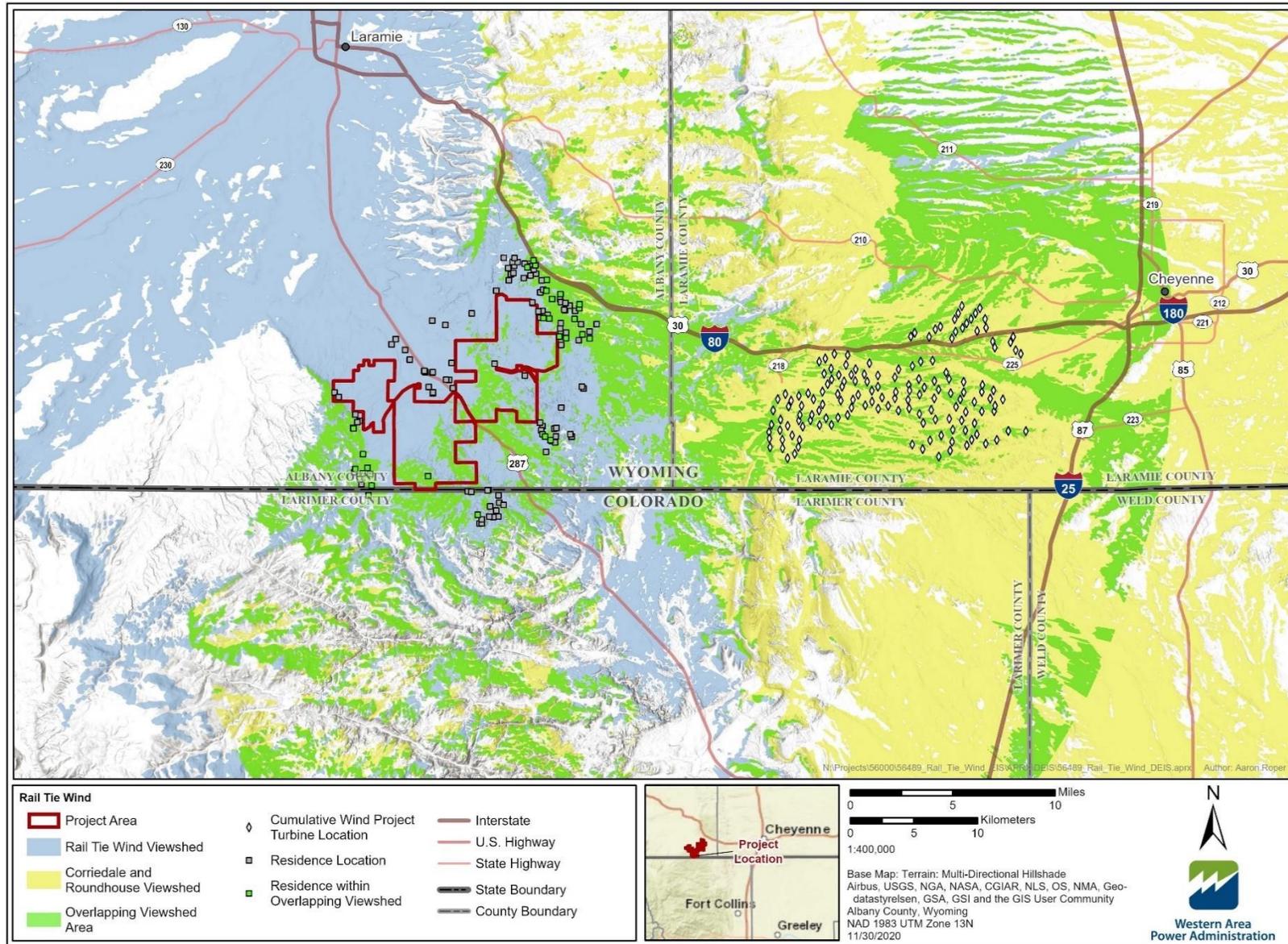


Figure 4-1. Cumulative wind project viewshed overlap.

4.3.6 Geology, Soils, and Mineral Resources

Past and present actions within the cumulative impacts area for geology, soils, and mineral resources were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.7 Land Use

Past and present actions within the cumulative impacts area for land use were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.8 Paleontological Resources

Past and present actions within the cumulative impacts area for paleontological resources were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.9 Public Health and Safety

Emergency service provider areas would overlap with RFFAs, potentially causing increased level of call outs. Construction industry best practices would minimize the effects of any increases by planning for emergency services well in advance of potential needs and by coordinating with emergency service providers.

4.3.10 Recreation Resources

Although it has been assumed that recreation resources within a 50-mile buffer of the Project may experience increases in demand during Project construction, the distributed nature of those resources offer ample opportunity for personnel from multiple large construction projects to find recreation within the current capacities. In addition, the increases from construction personnel from these projects attending larger, concentrated events such as Cheyenne Frontier Days are only a small fraction of overall attendance numbers.

4.3.11 Social and Economic Resources

Based on the information obtained on RFFAs, it appears that the geography and timing of housing demand for construction crews of these cumulative projects would be spread across a large area (including Cheyenne, Laramie, and smaller towns in western Albany County). It is also likely that the specialized construction crews would move from one project to the next because the RFFAs are not timed simultaneously, which could promote continued residency by these workers.

Local tax revenue would increase because of these projects individually and cumulatively. Sales tax would fluctuate with construction; when more equipment and materials are purchased sales tax revenue would increase. Property tax revenues would increase with the completion of each project, and slowly decline with the depreciation rate of each project. The list of RFFAs indicates that the maximum property taxes collected would likely occur in 2023; however, additional actions that are not reasonably foreseeable today would affect that projection as they are brought forward.

4.3.12 Transportation and Access

The local routes proposed for transporting materials, equipment, and crews to the Project do not have other RFFAs affecting them. The planned upgrades to the Interstate (I) 25/I-80 interchange in Cheyenne could have complicating implications and cumulative impacts when considered with the transportation needs of this Project. If highway transport were required through this interchange, requirements for oversized loads would be coordinated with WYDOT and construction contractors. The I-80 resurfacing would be expected to maintain one-lane traffic in each direction, along with the ability of the interstate highway to accommodate oversize loads, thus avoiding cumulative impacts. Other WYDOT projects in Laramie would not overlap in location with Project impacts to transportation.

4.3.13 Vegetation

Past and present actions within the cumulative impacts area for vegetation were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.14 Wetland and Water Resources

Past and present actions within the cumulative impacts area for wetland and water resources were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.3.15 Wildland Fire

Past and present actions within the cumulative impacts area for wildland fire were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.

4.4 Cumulative Impacts Summary

Cumulative impacts from the Rail Tie Wind Project would add to negative visual resource and cultural resource impacts, with positive effects to economic resources where these effects overlap with other impacts from RFFPs. The other resources analyzed would not experience cumulative impacts because the analysis areas do not overlap with RFFPs or the level of impact from the Project would not overlap with areas of impact from those RFFPs.

This page intentionally left blank.

CHAPTER 5. CONSULTATION AND COORDINATION

5.1 Public Involvement and Scoping

5.1.1 Public Involvement

In its outreach to the public, WAPA emphasizes four principles. First, the public involvement process should make it clear to the public how WAPA will listen to input. Second, the process should provide information about the methods and mechanisms available for the public to comment on the Project. Third, the process should describe for the public how input will be used and incorporated into decision making. Fourth, the process should summarize for the public the input that WAPA heard and how it affected the Project.

Using these principles as guidance, WAPA has completed the activities necessary for meaningful Project communications and public participation. These activities included the public scoping period and scoping meetings as noted below; the collection and analysis of public comments on the draft EIS, and holding the draft EIS public hearings; and the preparation of the final EIS and record of decision.

WAPA is maintaining a Project website that contains relevant information for this NEPA process, including the publicly released EIS as well as information provided by ConnectGen used in the development of the EIS analyses. This website can be found here:
<https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>.

In addition, ConnectGen is also maintaining a separate website. This website can be found here:
<https://www.railtiwind.com/>.

5.1.2 Scoping Period

The notice of intent to prepare an EIS was published in the Federal Register on December 30, 2019. This notice presented the Project, announced the 32-day public scoping period, solicited public comment, and announced scheduled scoping meetings.

The scoping process used for this Project was initiated on December 30, 2019, by mailing a description of the Project and invitation to the scoping meetings to a mailing list comprised of names and addresses obtained from the Larimer and Albany County Assessors' websites encompassing a 3-mile radius from the Project Area boundary.

WAPA hosted two public meetings in January 2020 at the Hilton Garden Inn Laramie, 2229 Grand Avenue, Laramie, Wyoming, 82070; approximately 80 individuals attended each meeting. The scoping meetings were advertised in a variety of formats, including publication in the Federal Register as well as newspapers with local circulation, mailed invitations to the Project mailing list, publication on WAPA's website, and news releases (SWCA 2020d). In each format, the advertisements provided logistics, explained the purpose of the public meetings, gave the schedule for the public comment (scoping) period, outlined additional ways to comment, and provided methods for obtaining additional information.

The 32-day period for submitting scoping comments was from December 30, 2019, to January 31, 2020. In total, 142 submittals containing 753 substantive comments were collected during the public scoping period. The Project's scoping report (SWCA 2020d) summarizes the input received on the scope of the EIS during that period. Although the period for scoping comments ended on January 31, 2020, WAPA has continued and will continue to accept comments on the Project throughout the NEPA process.

5.1.3 Draft Environmental Impact Statement Comment Period

On April 2, 2021, the draft EIS was noticed in the Federal Register by the EPA, beginning the public review and comment period. The comment period was open for 45 days, ending on May 17, 2021. WAPA held two virtual public hearings during the comment period, one each on April 28, and April 29, 2021. Recordings and transcripts of the virtual public hearings were captured, and meeting materials, recordings, transcripts, and a question-and-answer report are available on WAPA's Project website.

Public comments were accepted via online form, email, postal mail, and verbally at the virtual public hearings; a total of 124 comment submittals were received. The comments in these submittals have been considered and incorporated into this final EIS as appropriate by WAPA and its contractor. The comments and associated responses are provided as appendix C.

5.2 Agency Participation and Coordination

5.2.1 Federal, State, and Local Agencies

WAPA has contacted key Federal, State, county, and local agencies, as well as Native American tribes, to initiate coordination throughout the NEPA review process. Table 5-1 lists the agencies that WAPA has contacted during preparation of this EIS. Cooperating Agencies for this NEPA process are discussed in section 1.4, "Cooperating Agencies."

Table 5-1. Agencies Contacted to Initiate Coordination

Federal	State	Local
FS	Colorado Air National Guard	Albany County Commissioners
FWS	Colorado Department of Natural Resources	Albany County Planning and Zoning
EPA	CDOT	Albany County Road and Bridge Department
ACE	CPW	Larimer County Commissioners
U.S. Department of Agriculture	Colorado Geological Survey	Larimer County Department of Health and Environment
U.S. Department of the Interior	Colorado Governor's Energy Office	Larimer County Department of Natural Resources
U.S. General Services Administration	Colorado Public Utilities Commission	Larimer County Department of Planning and Building Services
U.S. Department of the Interior	Colorado SHPO	Larimer County Department of Engineering
FAA	State of Colorado Governor's Office	Larimer County Road and Bridge Department
ACHP	University of Wyoming	City of Laramie Mayor
Bureau of Indian Affairs/Rocky Mountain Regional Office	Wyoming Business Council	Laramie Chamber Business Alliance
BLM Wyoming State Office	Wyoming Department of Agriculture	Tie Siding Volunteer Fire Department
FEMA Region VIII	Wyoming Department of Education	–
FERC	WYDEQ	–
Federal Highway Administration	Wyoming Department of Health	–
NPS	Wyoming Department of Revenue	–
National Weather Service, Cheyenne, Wyoming	Wyoming Department of State Parks and Cultural Resources	–

Federal	State	Local
Wyoming U.S. House of Representatives	Wyoming Environmental Quality Council	–
Wyoming U.S. Senators	Wyoming Infrastructure Authority	–
–	Wyoming Public Service Commission	–
–	Wyoming State Climate Office	–
–	Wyoming State Engineer’s Office	–
–	WSGS	–
–	Wyoming Wildlife and Natural Resources Trust	–
–	Wyoming SHPO	–
–	WYDOT	–
–	WYGFD	–
–	Wyoming Office of State Lands and Investments	–
–	Wyoming Office of Homeland Security	–
–	State of Wyoming Governor’s Office	–

Source: SWCA (2020d).

5.2.2 Government-to-Government and Section 106 Consultation

WAPA is conducting formal consultation with interested tribes on a government-to-government level, according to Section 106 of the NHPA. WAPA has invited 16 federally recognized tribes to participate in the Section 106 consultation process (table 5-2). WAPA began informal coordination with tribes through letter outreach prior to the public scoping meetings. Letters of invitation were sent on February 27 and September 8, 2020. Tribes that have accepted WAPA’s invitation are the Northern Cheyenne Tribe, Northern Arapaho Tribe, Standing Rock Sioux, Yankton Sioux Tribe, Rosebud Sioux Tribe and the Ute Tribe of Uintah and Ouray Reservation. Consultation remains open to any tribe that wishes to participate, and consultation will be ongoing throughout the NEPA process. The PA is provided in appendix B of this final EIS.

Table 5-2. Tribes Invited to be Consulting Parties under National Historic Preservation Act Section 106

Tribe
Cheyenne River Sioux Tribe
Crow Creek Sioux Tribe
Crow Tribe
Eastern Shoshone Tribe of the Wind River Reservation
Fort Peck Assiniboine and Sioux Tribes
Lower Brule Sioux Tribe
Northern Arapaho Tribe
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation
Oglala Sioux Tribe
Rosebud Sioux Tribe
Santee Sioux Nation of Nebraska
Shoshone-Bannock Tribes of the Fort Hall Reservation
Sisseton Wahpeton Oyate Tribes

Tribe
Cheyenne River Sioux Tribe
Standing Rock Sioux Tribe
Ute Tribe of the Uintah and Ouray Reservation
Yankton Sioux Tribe

Source: SWCA (2020a).

5.2.3 Biological Coordination and Consultation

Section 7(a)(2) of the ESA requires any Federal agency that carries out, permits, licenses, funds, or otherwise authorizes an activity must consult with the FWS to ensure that the authorized activity is not likely to jeopardize the continued existence of any ESA-listed species or result in the adverse modification or destruction of designated critical habitat. Preliminary studies have been completed, and a biological determination has been made that the Project may affect the Preble’s meadow jumping mouse, an ESA-protected species. WAPA has conducted informal consultation with the FWS and received FWS concurrence (Abbott 2021) that the Project may affect, but is not likely to adversely affect, the species when considering the EPMs and species-specific conservation measures as noted in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.”

5.3 Preparers and Reviewers

5.3.1 Western Area Power Administration

WAPA staff who have been involved in the preparation of this EIS are listed in table 5-3.

Table 5-3. Western Area Power Administration Environmental Impact Statement Team

WAPA Staff	Role
Calvin Jennings, Ph.D.	Federal Preservation Officer/Tribal Liaison
Eric Weisbender	GIS Lead
Lisa Meyer	Archaeologist
Mark Wieringa	WAPA Document Manager
Timothy Langer, Ph.D.	Biology and Regulatory Specialist

5.3.2 SWCA Environmental Consultants

SWCA staff who have been involved in the preparation of this EIS are listed in table 5-4. To the best of SWCA’s knowledge and belief, no facts exist relevant to any past, present, or currently planned interest or activity (financial, contractual, personal, organizational, or otherwise) that relate to the proposed Project development; and bear on whether SWCA has a possible conflict of interest with respect to being able to render impartial, technically sound, and objective assistance or advice.

Table 5-4. SWCA Environmental Consultants Environmental Impact Statement Team

SWCA Staff	Role
Aaron Roper	GIS Lead
Alyssa Bell	Paleontological Resources
Arianna Porter	Wildland Fire Support
Brad Sohm	Air Quality and Noise Lead
Cara Bellavia	Principal in Charge
Chris Bockey	Visual Resources Analysis
Christa McCabe	Project Controller
Clint King	Avian Species Subject Matter Expert
David Fetter	Project Manager
Debbi Smith	Desktop Publishing and Section 508 Accessibility Compliance
Doug Faulkner	Natural Resources Lead
Haley Monahan	Natural Resources Support, Administrative Record
James Gregory	Socioeconomic Analysis
Jenny McCarty	Water Resources Support
Jill Grams	Visual Resources and Aesthetics
Joanna Guest	Air Quality and Noise Support
Kayla Bradshaw	Cultural Resources Support
Kerri Linehan	Technical Editor and Production Co-Lead
Krista Perry	Deputy Project Manager
Kristina Stelter	Document Formatter
Laura Klewicki	Land Use, Recreation, Public Health and Safety, Transportation
Linda Burfitt	Technical Editor and Production Co-lead
Mac Fuller	Geology and Soils Support
Mary Huisenga	Water Resources Lead
Matt Petersen	Senior NEPA Advisor
Nate Wojcik	Geology and Soils Lead
Ron Salvo	Project Controls Lead
Sarah Lupis	Project Coordinator and Public Involvement Lead
Scott Phillips	Cultural Resources Lead
Susan Munroe	Technical Editor
Vicky Amato	Wildland Fire Lead

This page intentionally left blank.

CHAPTER 6. REFERENCES

- Abbott, T.A. 2021. Field Supervisor, Wyoming Field Office. Personal communication between Mr. Tyler A. Abbott and Timothy Langer, Western Area Power Administration regarding the Preble's meadow jumping mouse (*Zapus hudsonius preblei*) determination. Cheyenne, Wyoming: Fish and Wildlife Service. August 18, 2021. Written communication.
- Army Corps of Engineers (ACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Washington, D.C.: *Environmental Laboratory*. Available at: <https://www.lrh.usace.army.mil/Portals/38/docs/USACE%2087%20Wetland%20Delineation%20Manual.pdf>. Accessed January 2021.
- . 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046494.pdf. Accessed January 2021.
- . 2014. *Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States*. Hanover, New Hampshire: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.
- Advisory Council on Historic Preservation (ACHP). 2009 *Section 106 Archaeology Guidance*. Available at: <https://www.achp.gov/sites/default/files/guidance/2017-02/ACHP%20ARCHAEOLOGY%20GUIDANCE.pdf>. Accessed August 2020.
- Abandoned Mine Land Division. 2020. *Scoping Comment*. Cheyenne, Wyoming: Department of Environmental Quality – Abandoned Mine Land Division. Written communication.
- Albany County. 2008. *Albany County Comprehensive Plan*. Available at: <http://www.co.albany.wy.us/documents-and-reports.aspx>. Accessed August 2020.
- . 2015. *Albany County Zoning Resolution, Adopted: August 1, 1997; General Update Adopted July 21, 2015. Multiple Amendments from 2015 through 2021*. Available at: <https://www.co.albany.wy.us/DocumentCenter/View/1004/Zoning-Resolution-PDF>. Accessed April 7, 2021.
- Albany County Emergency Management Agency and Carbon County Emergency Management Agency. 2019. *2019 Wyoming Region 3 Hazard Mitigation Plan. Albany & Carbon Counties*. Available at: <https://www.co.albany.wy.us/DocumentCenter/View/909/2019-Albany-County-Hazard-Mitigation-Plan-Approved-2020-PDF>. Accessed November 30, 2020.
- Albany County Fire District #1. 2020. *ACFD#1 Current District Territory Map*. Available at: <https://www.albanycountyfd1.com/>. Accessed November 30, 2020.
- Albany County Planning Office. 2021. *Approval of the Rail Tie Wind Project Application WED-01-21. Letter submitted to Amanda MacDonald on July 16, 2021*.
- Albany County Weed and Pest Control District. 2020. *Noxious Weeds*. Available at: <http://www.albanycountyweedandpest.com/noxious-weeds.html>. Accessed May 2020.
- American Cancer Society. 2020. *Radiofrequency (RF) Radiation*. Available at: <https://www.cancer.org/cancer/cancer-causes/radiation-exposure/radiofrequency-radiation.html>. Accessed September 2020.

- American Hospital Directory. 2020. Free Hospital Profiles. Available at: <https://www.ahd.com/search.php>. Accessed August 2020.
- Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Washington, D.C.: Edison Electric Institute; Sacramento, California: California Energy Commission.
- . 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Washington, D.C.: Edison Electric Institute.
- Baerwald, E.F., G.H. D’Amours, B.J. Klug, and R.M. Barclay. 2008. Barotrauma is a significant cause of bat fatalities at wind turbines. *Current Biology* 18(16):R695–R696.
- Barclay, R.M.R., E.F. Baerwald, and J.C. Gruver. 2007. Variation in bat and bird fatalities at wind energy facilities: assessing the effects of rotor size and tower height. *Canadian Journal of Zoology* 85(3):381–387.
- Baxter, G.T., and M.D. Stone. 1985. *Amphibians and Reptiles of Wyoming*. Second Edition. Cheyenne, Wyoming: Wyoming Game and Fish Department.
- . 1995. *Fishes of Wyoming*. Cheyenne, Wyoming: Wyoming Game and Fish Department.
- Black and Veatch. 2009. *Preliminary Geotechnical Investigation Results*. Performed for Shell Wind Energy, Inc B&V Project 163577. Hermosa Wind Project B&V File 41.0403. September 8, 2009.
- . 2010. *Second Geotechnical Investigation Results*. Performed for Shell WindEnergy Inc. B&V Project 163577. Hermosa West Wind Project B&V File 41.0403, January 15, 2010.
- Brown C.L., A.R. Hardy, J.R. Barber, K.M. Fristrup, K.R. Crooks, and L.M Angeloni. 2012. The effect of human activities and their associated noise on ungulate behavior. *PLoS ONE* 7(7):e40505.
- Bureau of Land Management (BLM). 1986. BLM Manual Handbook 8431-1—Visual Resource Contrast Rating. Available at: https://www.blm.gov/sites/blm.gov/files/program_recreation_visual%20resource%20management_quick%20link_BLM%20Handbook%20H-8431-1%2C%20Visual%20Resource%20Contrast%20Rating.pdf. Accessed September 2020.
- . 2015. *The Use of Color for Camouflage Concealment of Facilities*. Tech Note 446. Available at: https://blmwyomingvisual.anl.gov/docs/CamouflageBLM_TN_446.pdf. Accessed October 2020.
- . 2016. Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands. Instruction Memorandum No. 2016-124. Washington, D.C.: Bureau of Land Management.
- . 2020a. About Mining and Minerals. Available at: <https://www.blm.gov/programs/energy-and-minerals/mining-and-minerals/about>. Accessed May 2020.
- . 2020b. Land & Mineral System Reports. Available at: <https://reports.blm.gov/reports.cfm?application=LR2000>. Accessed May 2020.
- Burkey, T.V., and D.H. Reed. 2006. The effects of habitat fragmentation on extinction risk: mechanisms and synthesis. *Songklanakar Journal of Science and Technology* 28(1): 9–37.

- Campbell, S. 2015. Annual blade failures estimated at around 3,800. Available at: <https://www.windpowermonthly.com/article/1347145/annual-blade-failures-estimated-around-3800>. Accessed September 2020.
- Chapman, S.S., S.A. Bryce, J.M. Omernik, D.G. Despain, J. ZumBerge, and M. Conrad. 2004. Ecoregions of Wyoming (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia: U.S. Geological Survey (map scale 1:1,400,000). Available at: http://ecologicalregions.info/htm/wy_eco.htm. Accessed May 2020.
- Colorado Department of Transportation (CDOT). 2020. Planning & Design. Available at: <https://www.codot.gov/projects/north-i-25/NorthI-25/planning-design>. Accessed September 2020.
- Colorado Parks and Wildlife (CPW). 2020a. *2020 Regular Walk-In Atlas*. Available at: <https://cpw.state.co.us/Documents/RulesRegs/Brochure/WalkInAtlas.pdf>. Accessed January 2021.
- . 2020b. 2019 Colorado Fishing Regulations. Available at: <https://cpw.state.co.us/Documents/RulesRegs/Brochure/fishing.pdf#search=gold%20medal%20water>. Accessed August 2020.
- . 2020c. Colorado Fishing Atlas. Available at: <https://ndismaps.nrel.colostate.edu/index.html?app=FishingAtlas>. Accessed August 2020.
- ConnectGen Albany County LLC (ConnectGen). 2020. *Rail Tie Wind Project Description*. Wilmington, Delaware: ConnectGen Albany County LLC.
- . 2021. Draft Endangered Species Act-Listed Species Review, Rail Tie Wind Project, Albany County, Wyoming. March 2021.
- Council on Environmental Quality (CEQ). 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act*. Available at: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf. Accessed September 2020.
- Cowan, J.P. 1993. *Handbook of Environmental Acoustics*. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Cowley, J.R. 2020. *North Platte River Coordinator and State Coordinator of Wyoming's Depletion Plan*. Rail Tie Wind Project Platte River Implementation Program compliance process. Cheyenne, Wyoming: State Engineer's Office. Written communication.
- Crowe, D.M. 1986. *Furbearers of Wyoming*. Cheyenne, Wyoming: Wyoming Game and Fish Department.
- Daub and Associates, Inc. 2010. *Shell Wind Energy Hermosa Lease Area—Potential Development of Economic Resources*. Prepared for Shell WindEnergy, Inc. Grand Junction, Colorado: Daub and Associates, Inc.
- Department of Energy (DOE). 2018. *2018 Wind Technologies Market Report*. Available at: <https://www.energy.gov/sites/prod/files/2019/08/f65/2018%20Wind%20Technologies%20Market%20Report%20FINAL.pdf#page=65&zoom=100,93,96>. Accessed August 2020.
- . 2020. WINDEXchange Wind Energy Projects and Property Values. Available at: <https://windexchange.energy.gov/projects/property-values>. Accessed June 2020.
- Durland Donahou, A. 2020. *Faxonius virilis*. Available at: <https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=215>. Accessed June 2020.

- Environmental Protection Agency (EPA). 1999. *Regional Haze Regulations; Final Rule*. FRL-6353-4 40 CFR Part 51. July 1, 1999. Available at: <https://www.gpo.gov/fdsys/pkg/FR-1999-07-01/pdf/99-13941.pdf>. Accessed May 7, 2020.
- . 2009. *AP-42, Fifth Edition: Compilation of Air Pollution Emissions Factors, Volume I: Stationary Point and Area Sources*. Sections 11.2, 13.2.1, 13.2.3, 13.2.4. Research Triangle Park, North Carolina: Office of Air Quality Planning and Standards.
- . 2015. *MOVES2014a User's Guide*. EPA-420-B-15-095. Ann Arbor, Michigan: Office of Transportation and Air Quality, Assessment and Standards Division.
- . 2020a. National Ambient Air Quality Standards. Available at: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed May 2020.
- . 2020b National Emission Inventory. Available at: <https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#tab-3>. Accessed June 2020.
- Environmental Resources Management Southwest, Inc. (ERM). 2010a. *Surface Water Assessment Report*. Project No. 0116974, Hermosa West Wind Farm Project, Albany County, Wyoming. Prepared for Shell WindEnergy Inc.
- . 2010b. *Hermosa West Wind Farm Project: Class III Archaeological Survey Report for Federal Action*. Prepared for Shell WindEnergy Inc. On file with ConnectGen Albany County LLC.
- Erathem-Vanir Geological Consultants. 2010. *Paleotological Resources Analysis Letter Report for the Hermosa West Wind Farm Project (Project) in southeast Albany County, Wyoming*. Prepared for Shell WindEnergy Inc. Pocatello, Idaho: Erathem-Vanir Geological Consultants.
- Erickson, W.P., G.D. Johnson, and D.P. Young. 2005. A summary and comparison of bird mortality from anthropogenic causes with an emphasis on collisions. In *Bird Conservation Implementation and Integration in the Americas: Proceedings of the Third International Partners in Flight Conference*. Gen. Tech. Rep. PSW-GTR-191. Albany, California: U.S. Dept. of Agriculture, Forest Service, Pacific Southwest Research Station.
- Erickson, W.P., M.M. Wolfe, K.J. Bay, D.H. Johnson, and J.L. Gehring. 2014. A comprehensive analysis of small-passerine fatalities from collision with turbines at wind energy facilities. *PloS one* 9(9): e107491.
- Farm Service Agency (FSA). 2019. Map of CRP Enrollment October 2019. Available at: <https://www.fsa.usda.gov/programs-and-services/conservation-programs/reports-and-statistics/conservation-reserve-program-statistics/index>. Accessed August 2020.

- Federal Bureau of Investigation (FBI). 2018a. 2018 Crime in the United States. Table 80 – Wyoming. Full-time Law Enforcement Employees by Metropolitan and Nonmetropolitan Counties, 2018. Available: <https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018/tables/table-80/table-80-state-cuts/wyoming.xls>. Accessed January 2021.
- . 2018b. 2018 Crime in the United States. Table 78 – Wyoming. Full-time Law Enforcement Employees by City, 2018. Available at: <https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018/tables/table-78/table-78-state-cuts/wyoming.xls>. Accessed January 2021.
- . 2018c. FBI Releases 2017 Crime Statistics. Available at: <https://www.fbi.gov/news/pressrel/press-releases/fbi-releases-2017-crime-statistics>. Accessed August 2020.
- . 2019. 2018 About Crime in the United States (CIUS), by offense, by region, by local agency. Tables 8, 9, 10, 78, 79, and 80. Available at: <https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018/home>. Accessed August 2020.
- Federal Emergency Management Agency (FEMA). 2011. FEMA Flood Map Service Center FIRM Panel 56001C2250E. Available at: <https://msc.fema.gov/portal/advanceSearch#searchresultsanchor>. Accessed December 2020.
- Federal Highway Administration (FHWA). 2007. Design for Fish Passage at Roadway-Stream Crossings: Synthesis Report. Available at: https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=204&id=160. Accessed June 2020.
- Firetrace International. 2019. The Wind Turbine Fire Problem, By the Numbers. Available at <https://www.firetrace.com/fire-protection-blog/wind-turbine-fire-statistics#:~:text=Wind%20turbines%20catch%20fire%20at%20a%20rate%20of%201%20in%201%2C710&text=That%20means%201%20in%20every,1%20in%202%2C000%20each%20year>. Accessed August 2020.
- Fish and Wildlife Service (FWS). 1999. *Memorandum: Regional Policy on the Protection of Fens, As Amended*. Available at: <https://www.fws.gov/mountain-prairie/es/fen/FWSRegion6FenPolicy1999.pdf>. Accessed February 2020.
- . 2007a. Revised Proposed Rule to Amend the Listing for the Preble’s Meadow Jumping Mouse (*Zapus hudsonius preblei*) to Specify Over What Portion of its Range the Subspecies is Threatened. *Federal Register* 72: 62992–63024.
- . 2007b. *Bamforth, Hutton Lake, and Mortenson Lake Comprehensive Conservation Plan*. Available at: https://www.fws.gov/mountain-prairie/refuges/refugesUpdate/completedPlanPDFs_A-E/bmf_htl_mrl_2007_ccpfinal_all.pdf. Accessed August 2020
- . 2008a. *Preble’s Meadow Jumping Mouse (Zapus hudsonius preblei) 5-year Review, Short Form Summary*. Lakewood, Colorado: U.S. Fish and Wildlife Service, Region 6.
- . 2008b. *Birds of Conservation Concern 2008*. Arlington, Virginia: U.S. Fish and Wildlife Service.
- . 2012. *Land-Based Wind Energy Guidelines*. Available at: https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf. Accessed May 2020.
- . 2013. *Eagle Conservation Plan Guidance, Module 1—Land-based Wind Energy, Version 2*. Washington, D.C.: Department of the Interior, U.S. Fish and Wildlife Service, Division of Migratory Bird Management.

- . 2015. *Wyoming Toad (Bufo hemiophrys baxteri) now known as Anaxyrus baxteri Revised Recovery Plan, May 2015*. Cheyenne, Wyoming: U.S. Fish and Wildlife Service.
- . 2018. *Preble's Meadow Jumping Mouse Recovery Plan*. Lakewood, Colorado: U.S. Fish and Wildlife Service, Region 6.
- . 2019a. *Official IPaC Resource List for the Rail Tie Wind Project*. Consultation Code 06E13000-2019-SLI-0409. September 10, 2019.
- . 2019b. Federally Listed, Proposed and Candidate Species: Platte River Species. Available at: <https://www.fws.gov/wyominges/Species/PltRiv.php>. Accessed June 2020.
- . 2019c. *Draft Hutton Lake National Wildlife Refuge Hunt Plan*. Available at: <https://www.fws.gov/Mountain-Prairie/HuntFish/Hutton-HuntPlan-Draft.pdf>. Accessed August 2020.
- . 2020a. Species Profile for Preble's meadow jumping mouse (*Zapus hudsonius preblei*). Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=4090>. Accessed June 2020.
- . 2020b. Wyoming Species of Concern. Available at: https://www.fws.gov/wyominges/species_concern.php. Accessed May 2020.
- . 2020c. Updated Eagle Nest Survey Protocol. Available at: <https://www.fws.gov/birds/management/managed-species/eagle-management.php>. Accessed August 2020.
- . 2020d. Migratory Bird Program: Management – Flyways. Available at <https://www.fws.gov/birds/management/flyways.php>. Accessed May 2020.
- . 2021a. Endangered and Threatened Wildlife and Plants; Removal of the Interior Least Tern from the Federal List of Endangered and Threatened Wildlife; Final Rule. *Federal Register* 86:2564–2581.
- . 2021b. Preble's Meadow Jumping Mouse. Available at: <https://www.fws.gov/mountain-prairie/es/preblesMeadowJumpingMouse.php>. Accessed January 28, 2021.
- . 2021c. Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities. Available at: <https://www.fws.gov/mountain-prairie/migbirds/>. Accessed August 2021.
- . 2021d. Recommended Protocol for Conducting Pre-construction Eagle Nest Surveys at Wind Energy Projects. Available at: <https://www.fws.gov/mountain-prairie/migbirds/>. Accessed August 2021.
- Green, M. 2017. Cowboy Fire sparked by wind turbine burning on 1,592 acres near Evanston. Available at <https://savethehuronmountains.org/2018/06/26/wyoming-cowboy-fire-sparked-by-wind-turbine-burning-on-1592-acres/#:~:text=EVANSTON%2C%20Wyo.,spread%20to%20the%20sage%20brush>. Accessed August 2020.
- Gautam, S., and R. Bhattarai. 2018. Low-Water Crossings: An Overview of Designs Implemented along Rural, Low-Volume Roads. *Environments* 5(2):22. Available at: <https://www.mdpi.com/2076-3298/5/2/22>. Accessed December 2020.

- Hayhoe, K., D.J. Wuebbles, D.R. Easterling, D.W. Fahey, S. Doherty, J. Kossin, W. Sweet, R. Vose, and M. Wehner. 2018. Our Changing Climate. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Vol. II*, edited by D.R. Reidmiller, C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart, pp. 72–144. Washington, D.C.: U.S. Global Change Research Program.
- Hertenberger, K.C., J. de Argüelles, R. Ellinghaus, K. Hong Ho, T. Howe, M. Johst, T. Kjer, N. Kragelund, M. McBride, A. Mengotti, F. Schloz, and K. Schreiber. *New Challenges for Wind Energy*. Available: <https://www.imia.com/wp-content/uploads/2018/01/IMIA-WGP-6209-Wind-Energy-final121009-.pdf>. Accessed August 2020.
- Hester, S.G., and M.B. Grenier. 2005. *A Conservation Plan for Bats in Wyoming*. Lander, Wyoming: Wyoming Game and Fish Department, Nongame Program.
- Hoen, B., J.P. Brown, T. Jackson, R. Wisner, M. Thayer, and P. Cappers. 2013. *A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States*. Available at: https://www.energy.gov/sites/prod/files/2013/12/f5/2013_wind_property_values.pdf. Accessed January 2021.
- Hoen, B., R. Wisner, P. Cappers, M.A. Thayer, and S. Gautam. 2009. *The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis*. Available at: <https://eta-publications.lbl.gov/sites/default/files/report-lbnl-2829e.pdf>. Accessed August 2020.
- Hoen, B., R. Wisner, P. Cappers, M.A. Thayer, and G. Sethi, G. 2011. Wind Energy Facilities and Residential Properties: The Effect of Proximity and View on Sales Prices. *Journal of Real Estate Research* 33(3):279–316.
- Innes, R.J., and K. Zouhar. 2018. Fire regimes of mountain big sagebrush communities. In *Fire Effects Information System* [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory (Producer). Available at: https://www.fs.fed.us/database/feis/fire_regimes/mountain_big_sagebrush/all.html. Accessed January 2021.
- Interagency Fuels Treatment Decision Support System. 2020. The Interagency Fuel Treatment Decision Support System. Available at: https://iftdss.firenet.gov/landing_page/index.html. Accessed September 2020.
- Ivinson Memorial Hospital. 2020. Patient Care. Available at: <https://www.ivinsonhospital.org/patient-care>. Accessed August 2020.
- Kampgrounds of America, Inc. (KOA). 2020a. Laramie KOA. Available at: <https://koa.com/campgrounds/laramie/>. Accessed August 2020.
- . 2020b. Fort Collins/Lakeside KOA. Available at: <https://koa.com/campgrounds/fort-collins-lakeside/>. Accessed August 2020.
- Kuba, J. 2020. Director of Environmental Affairs. Review of Water-Related Activities and Potential Downstream Depletions to the Platte River System for the Rail Tie Wind Project, Albany County, Wyoming. Written communication with ConnectGen Albany County LLC, Houston, Texas.

- Kunc, H.P., and R. Schmidt. 2019. The effects of anthropogenic noise on animals: a meta-analysis. *Biology Letters* 15(11): 20190649.
- Laposa, S.P., and A. Mueller. 2010. Wind Farm Announcements and Rural Home Prices: Maxwell Ranch and Rural Northern Colorado. *Journal of Sustainable Real Estate* 2(1):383–402.
- Larimer County. 2018. *Comprehensive Annual Financial Report, Larimer County, Colorado, Year ended December 31, 2018*. Available at: www.larimer.org/sites/default/files/2018-cafr.pdf. Accessed May 2020.
- Laramie Regional Airport. 2010. *Laramie Regional Airport Master Plan, Final Draft*. Available at: <http://sites.jviation.com/laramie/LAR-FINAL-DRAFT032310.pdf>. Accessed August 2020.
- Laramie Wyoming. 2020a. Fire. Available at: <https://www.cityoflaramie.org/93/Fire>. Accessed August 2020.
- . 2020b. Services. Available at: <https://www.cityoflaramie.org/234/Services>. Accessed August 2020.
- Lazard. 2019. Lazard’s Levelized Cost of Energy Analysis – Version 13.0. November 2019. Available at: <https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf>. Accessed August 2020.
- Losch, A. 2020. WER 14216.03. Cheyenne, Wyoming: Wyoming Game and Fish Department. Written Communication.
- Loss, S.R., T. Will, and P.P. Marra. 2013. Estimates of bird collision mortality at wind facilities in the contiguous United States. *Biological Conservation* 168:201–209.
- Lovich, J.E., and J.R. Ennen. 2013. Assessing the state of knowledge of utility-scale wind energy development and operation on non-volant terrestrial and marine wildlife. *Applied Energy* 103(2013):52–60.
- Macey, M. 2017. Colorado Museums. Available at: <http://coloradomuseums.co/>. Accessed August 2020.
- Magnusson, M., and R. Gittell. 2012. *Impact of the Lempster Wind Power Project on Local Residential Property Values*. Whittemore School of Business & Economics, University of New Hampshire. January.
- Mazor, E. 1990. Understanding groundwater systems of the Southern Laramie Basin, Albany County, Wyoming through applied chemical and physical data. In *Report WWRRC-90-19*. Wyoming Water Research Center.
- McNees, L.M., J.A. Lowe, B.R. McClelland, and N.E. Fleming. 2010. *Cultural Resource Overview of the Rawlins Field Office*. Rawlins, Wyoming: Bureau of Land Management.
- Military Aviation and Installation Assurance Siting Clearinghouse. 2019. Military Training Routes (MTR) Corridors. Available at: https://www.acq.osd.mil/dodsc/fast41_gisdatasets.html. Accessed September 2020.
- Monsen, S.B. 2004. *Restoring Western Ranges and Wildlands* (Vol. 2). United States Department of Agriculture, Forest Service, Rocky Mountain Research Station.

- Montanya, J., O. van der Velde, and E.R. Williams. 2014. Lightning discharges produced by wind turbines. *JGR Atmospheres* 19(3):1455–1462. Available at: <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013JD020225>. Accessed June 2021.
- Morris, B.C., M.C. Bolding, W.M. Aust, K.J. McGuire, E.B. Schilling, and J. Sullivan. 2016. Differing Levels of Forestry Best Management Practices at Stream Crossing Structures Affect Sediment Delivery and Installation Costs. *Water* 8(3):92. Available at: <https://www.mdpi.com/2073-4441/8/3/92>. Accessed December 2020.
- National Agricultural Statistics Service (NASS). 2017. *Census of Agriculture*. Available at: https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Wyoming/cp56001.pdf. Accessed August 2020.
- National Education Association Research. 2021. Common Core of Data. District Details (2019–2020 School Year). Available at: <http://nces.ed.gov/ccd/districtsearch/>. Accessed January 2021.
- National Fire Protection Association. 2020. Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations. Available at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=850>. Accessed July 2020.
- National Institute of Environmental Health Sciences (NIEHS). 2002. *Electric and Magnetic Fields Associated with the Use of Electric Power*. Available at: https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf. Accessed September 2020.
- . 2020. Electric and Magnetic Fields. Available at: <https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm>. Accessed August 2020.
- National Oceanic and Atmospheric Administration (NOAA). 2020a. State Climate Summaries: Wyoming. Available at: <https://statesummaries.ncics.org/wy>. Accessed May 2020.
- . 2020b. Summary of Monthly Normals for Laramie Airport GHCND:USW00024022. Available at: https://www.ncdc.noaa.gov/cdo-web/datasets/normal_mly/stations/GHCND:USW00024022/detail. Accessed May 2020.
- National Park Service (NPS). 1995. *National Register Bulletin 15; How to Apply the National Register Criteria for Evaluation*. Available at: https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf. Accessed July 2020.
- Natural Resources Conservation Service (NRCS). 2020. Agricultural Conservation Easement Program. Available at: <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695>. Accessed August 2020.
- New York Department of Environmental Conservation. 2001. *Assessing and Mitigating Noise Impacts*. Available at: https://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf. Accessed May 6, 2020.
- Orabona, A.C., C.K. Rudd, N.L. Bjornlie, Z.J. Walker, S.M. Patla, and R.J. Oakleaf. 2016. *Atlas of Birds, Mammals, Amphibians, and Reptiles in Wyoming*. Lander, Wyoming: Wyoming Game and Fish Department Nongame Program.

- PaleoWest. 2020. *Paleontological Resources Assessment Technical Report: Rail Tie Wind Project, Albany County, Wyoming*. San Diego, California: PaleoWest.
- Prugh, L.R., K.E. Hodges, A.R.E. Sinclair, and J.S. Brashares. 2008. Effect of habitat area and isolation on fragmented animal populations. *Proceedings of the National Academy of Sciences* 105(52):20770–20775.
- Rawlins Interagency Dispatch Center. 2020. About Us. Available at: https://gacc.nifc.gov/rmcc/dispatch_centers/r2rwc/about_us.htm. Accessed August 2020.
- Sawyer, H., N.M. Korfanta, R.M. Nielson, K.L. Monteith, and D. Strickland. 2017. Mule deer and energy development-Long-term trends of habituation and abundance. *Global Change Biology* 23(11):4521–4529.
- Smith, K.T., K.L. Taylor, S.E. Albeke, and J.L. Beck. 2020. Pronghorn Winter Resource Selection Before and After Wind Energy Development in South-Central Wyoming. *Rangeland Ecology and Management* 73(2020):227–333.
- State of Wyoming. 2019. Executive Order 2019-3. Greater Sage-Grouse Core Area Protection. Cheyenne: Office of the Governor, State of Wyoming.
- Sullivan, R., L.B. Kirchler, T. Lahti, S. Roché, K. Beckman, B. Cantwell, and P. Richmond. 2012. *Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes*. Available at <http://blmwyomingvisual.anl.gov/docs/WindVITD.pdf>. Accessed August 2020.
- SWCA Environmental Consultants (SWCA). 2020a. *Rail Tie Wind Project Cultural Resource Visual Effect Assessment: Cultural Resource Identification and Key Observation Point Selection Methodology (05-05-2020)*. Prepared by SWCA on behalf of Western Area Power Administration (WAPA) and submitted to Section 106 Consulting Parties. Fort Collins, Colorado: SWCA Environmental Consultants.
- . 2020b. *Rail Tie Wind Project Wildland Fire Background*. Process Memorandum to file, September 24, 2020. Fort Collins, Colorado: SWCA Environmental Consultants.
- . 2020c. *Rail Tie Wind Project Environmental Impact Statement Determination of Reasonably Foreseeable Actions Considered in Cumulative Effects Analysis*. Process Memorandum to File, August 17, 2020. Fort Collins, Colorado: SWCA Environmental Consultants.
- . 2020d. *Rail Tie Wind Project Scoping Report*. Prepared for Western Area Power Administration (WAPA). Fort Collins, Colorado: SWCA Environmental Consultants.
- . 2021. *Rail Tie Wind Project Wildland Fire Background*. Process Memorandum to file, September 24, 2020. Fort Collins, Colorado: SWCA Environmental Consultants.
- Taucher, P., T.T. Bartos, K.G. Taboga, L.L. Hallberg, M.L. Clark, J. Stafford, T. Gracias, B. Hinckley, B. Worman, K. Clarey, L. Lindemann, S.A. Quillinan, D. Copeland, R. Hays, and M. Thompson. 2013. Platte River Basin Water Plan Update, Groundwater Study. Level 1 (2009-2013), Available Groundwater Determination Technical Memorandum. Available at: <http://waterplan.state.wy.us/plan/platte/2013/gw-finalrept/gw-finalrept.html>. Accessed September 2020.

- Terracon. 2020. *Preliminary Geotechnical Engineering Report. Rail Tie Wind Farm – Preliminary Study Albany County, Wyoming*. Prepared for ConnectGen, LLC. June 17, 2020.
- Tetra Tech. 2020a. *Rail Tie Wind Project Visual Impact Assessment*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020b. *Rail Tie Wind Project Shadow Flicker Assessment Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020c. *Rail Tie Wind Project Air Quality Analysis Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020d. *Biological Resources Evaluation: Rail Tie Wind Project, Albany County, Wyoming*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020e. *Swift Fox Presence/Absence Remote Camera Surveys, Rail Tie Wind Project, Albany County, Wyoming*. Technical report prepared for ConnectGen Albany County LLC.
- . 2020f. *Burrowing Owl Presence/Absence Surveys, Rail Tie Wind Project, Albany County, Wyoming*. Technical report prepared for ConnectGen Albany County LLC.
- . 2020g. *Preble’s Meadow Jumping Mouse Habitat Suitability Assessment for Rail Tie Wind Energy Project, Albany County, Wyoming*. Technical report prepared for ConnectGen Albany County LLC.
- . 2020h. *Historic Properties Visual Impact Assessment: Addendum to Cultural Resources Evaluation, Rail Tie Wind Project, Albany County, Wyoming*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020i. *Rail Tie Wind Project Land Use, Agriculture, and Recreation Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020j. *Rail Tie Wind Project Health and Safety Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020k. *Social and Economic Analysis Technical Report, Rail Tie Wind Project, Albany County, Wyoming*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020l. *Rail Tie Wind Project Transportation Analysis Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020m. *Rail Tie Wind Project Surface Water and Groundwater Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2020n. *Acoustical Assessment Technical Report*. Prepared for ConnectGen Albany County LLC. Pasadena, California: Tetra Tech.
- . 2021a. *Review of Preble’s Meadow Jumping Mouse Occurrence Records*. Technical memorandum. Golden, Colorado: Tetra Tech, Inc.
- . 2021b. *Rail Tie Wind Project Reconnaissance Level Assessment*. Prepared for ConnectGen Albany County LLC. Golden, Colorado: Tetra Tech.

- Thompson, M., J.A. Beston, M. Etterson, J.E. Diffendorfer, and S.R. Loss. 2017. Factors associated with bat mortality at wind energy facilities in the United States. *Biological Conservation* 215:241–245.
- Tilley, D., and T. Pickett. 2019. *Plant Guide for threetip sagebrush* (*Artemisia tripartite*). Available at: https://plants.usda.gov/plantguide/pdf/pg_artr4.pdf. Accessed September 2020.
- Trombulak, S.C., and C.A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* 14(1):18–30.
- Uadiale, S., E. Urban, R. Carvel, D. Lange, and G. Rein. 2014. Overview of problems and solutions in fire protection engineering of wind turbines. *Fire Safety Science* 11:983–995.
- Uniform Crime Reporting Statistics. 2020. U.S. Department of Justice Federal Bureau of Investigation. Crime in 2014. Available at: <https://www.ucrdatatool.gov/Search/Crime/Local/RunCrimeOneYearofData.cfm>. Accessed August 2020.
- U.S. Bureau of Labor Statistics (BLS). 2018a. Table 2. Numbers of non-fatal occupational injuries and illnesses by case type and ownership, selected industries, 2018. Available at: https://www.bls.gov/web/osh/summ2_00.htm. Accessed August 2020.
- . 2018b. Quarterly Census of Employment and Wages. Available at: https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables. Accessed August 2020.
- U.S. Census Bureau. 2019a. DP04: Selected Housing. 2013-2017 American Community Survey 5-Year Estimates. Available at: <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed August 2020.
- . 2019b. B25004: Vacancy Status. Universe: Vacant Housing Units. 2013-2017 American Community Survey 5-Year Estimates. Available at: <http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed August 2020.
- . 2019c. HH-6. Average Population Per Household and Family: 1940 to Present. Current Population Survey, March and Annual Social and Economic Supplements. November. Available at: <https://www.census.gov/data/tables/time-series/demo/families/households.html>. Accessed August 2020.
- . 2020. P001. Total Population. Census 2000 Summary File 1 (SF 1) 100-Percent Data. Available at: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed August 2020.
- U.S. Climate Data. 2020. Climate Laramie – Wyoming. Available at: <https://www.usclimatedata.com/climate/laramie/wyoming/united-states/uswy0102>. Accessed May 2020.
- U.S. Geological Society (USGS). 2020a. Earthquake Hazard Mapping. Available at: https://www.usgs.gov/natural-hazards/earthquake-hazards/science/united-states-lower-48?qt-science_center_objects=0#qt-science_center_objects. Accessed May 2020.
- . 2020b. 20201002, USGS Watershed Boundary Dataset (WBD) for 2-digit Hydrologic Unit - 10 (published 20201002): U.S. Geological Survey (USGS).

- U.S. News. 2020a. Public Safety Rankings. Measuring crime levels in each state. Available at: <https://www.usnews.com/news/best-states/rankings/crime-and-corrections/public-safety>. Accessed August 2020.
- . 2020b. Wyoming Rankings and Facts. Available at: <https://www.usnews.com/news/best-states/wyoming>. Accessed August 2020.
- Ver Ploeg, A.C.S., and Boyd. 2007. Geologic map of the Laramie 30' x 60' quadrangle, Albany and Laramie Counties, southeastern Wyoming. Wyoming State Geological Survey Map Series MS-77. Scale 1: 100,000.
- Wahl, D., and P. Giguere. 2006. *Ice Shedding and Ice Throw – Risk and Mitigation*. Available at: https://www.ge.com/content/dam/gepower-pgdp/global/en_US/documents/technical/ger/ger-4262-ice-shedding-ice-throw-risk-mitigation.pdf. Accessed August 2020.
- Walter, D., D.M. Leslie, Jr., and J.A. Jenks. 2004. Response of Rocky Mountain Elk (*Cervus Elaphus*) to Wind-Power Development in Southwestern Oklahoma. Presented at the Joint Meeting of the Oklahoma Chapter of the Wildlife Society, Kansas Chapter of the Wildlife Society, and Kansas Chapter of Society for Range Management, Woodward, Oklahoma.
- Weimer, M. 2019. Overland Trail. Colorado Encyclopedia. Available at: <https://coloradoencyclopedia.org/article/overland-trail>. Accessed August 2020.
- Western Area Power Administration (WAPA). 2012. *Draft Environmental Impact Statement, Hermosa West Wind Energy Project*. DOE/EIS-0438. Available at: <https://www.energy.gov/nepa/downloads/eis-0438-draft-environmental-impact-statement>. Accessed August 2020.
- . 2020a. *System Impact Study 2019-G2*. Studies performed by Transmission Planning North.
- . 2020b. *Initiation of Section 106 Consultation for the Proposed Rail-Tie Wind Project in Albany County, Wyoming*. Submitted to Wyoming State Historic Preservation Office, April 1, 2020.
- Wyoming Department of Environmental Quality (WYDEQ). 2014. *Stream and Lakeshore Restoration Best Management Practice Manual*. Cheyenne, Wyoming: Wyoming Department of Environmental Quality, Water Quality Division, Nonpoint Source Program.
- Western EcoSystems Technology, Inc. (WEST). 2011. *Wildlife Baseline Studies for the Hermosa West Wind Resource Area, Albany County, Wyoming, Final Report April 2009-April 2010*. Technical report prepared for ConnectGen Albany County LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.
- . 2019a. *2019 Golden Eagle and Raptor Nest Survey Report, Rail Tie, WY*. Technical report prepared for ConnectGen Albany County LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.
- . 2019b. *Avian Use Study, Rail Tie Wind Project, Albany County, Wyoming: Final Report, January–December 2019*. Technical report prepared for ConnectGen Albany County LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.
- . 2019c. *Bat Activity Surveys for the Rail Tie Wind Project, Albany County, Wyoming*. Technical report prepared for ConnectGen Albany County, LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.

- . 2020a. *Golden Eagle and Raptor Nest Survey Report, Rail Tie, WY*. Technical report prepared for ConnectGen Albany County LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.
- . 2020b. *Year 2 NABat Surveys for the Rail Tie Wind Project, Albany County, Wyoming*. Final Report, June 26–July 1, 2020. Prepared for ConnectGen Albany County LLC, Houston, Texas. Prepared by WEST, Laramie, Wyoming.
- . 2021. WEST. 2021. *Avian Use Study, Rail Tie Wind Project, Albany County, Wyoming*: Final Report, January–December 2020. Technical report prepared for ConnectGen Albany County LLC. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.
- Western Regional Air Partnership. 2006. *WRAP Fugitive Dust Handbook*. Available at: https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed August 2020.
- Withroder, M. 2019. Regional Wildlife Supervisor. Personal communication between Mr. Matt Withroder and Shaun Brooks, Tetra Tech, Inc. regarding hunting resources in the Rail Tie Wind Project Area. Laramie, Wyoming: Wyoming Game and Fish Department. December 16, 2019. Written communication.
- World Conservation Monitoring Centre. 1992. *Global Biodiversity: Status of the Earth's Living Resources*. Berlin, Germany: Springer.
- Wyoming Department of Agriculture. 2020. Weed & Pest Program. Available at: <https://wyagric.state.wy.us/divisions/ts/sections-a-programs/weed-a-pest>. Accessed May 2020.
- Wyoming Department of Environmental Quality (WYDEQ). 2020a. Department of Land Quality. Webpage: <http://deq.wyoming.gov/lqd/>. Accessed May 2020.
- . 2020b. Stormwater Permitting - Construction General Permits. Available at: <http://deq.wyoming.gov/wqd/storm-water-permitting/resources/construction-general-permits/>. Accessed October 2020.
- Wyoming Department of Fire Prevention and Electrical Safety. 2020. Codes and Standards. Available at: <http://wsfm.wyo.gov/plan-review/codes-and-standards>. Accessed August 11, 2020.
- Wyoming Department of Transportation (WYDOT). 2011. *WYDOT Traffic Studies Manual*. March 2011. Available at: <http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Traffic%20data/Traffic%20Studies%20Manual.pdf>. Accessed September 2020.
- . 2015. *State Wide Rail Plan, Final*. Available at: http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Railroads/Wyoming_SRP_Complete.pdf. Accessed January 2021.
- . 2018. *I-80 Corridor Study Master Plan Implementation Report*. Available at: http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Transportation-Plans/Final-Implementation-Report%20wAppendices_Final%20March%202018.pdf. Accessed September 2020.
- . 2020a. I-25/I-80 Interchange Project. Available at: <http://www.i25i80.com/>. Accessed September 2020.
- . 2020b. WDOT Travel Information Service (Laramie). I-80. Available at: <https://wyoroad.info/pls/Browse/WRR.RoutesResults?SelectedRoute=I80>. Accessed September 2020.
- . 2020c. WYDOT Standard Plans: Temporary Erosion Control Measures for Storm Water Pollution Prevention. Available at: http://www.dot.state.wy.us/home/engineering_technical_programs/manuals_publications/standardplans/Standard_Plans.html. Accessed November 2020.

- Wyoming Game and Fish Department (WYGF). 2010. *Wildlife Protection Recommendations for Wind Energy Development in Wyoming*. Available at: <https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/Habitat%20Information/Wind%20Energy%20Development/Wildlife-Protection-Recommendations-for-Wind-Energy-Development.pdf>. Accessed May 2020.
- . 2014. *Brook Stickleback Wyoming Distribution*. Available at: https://wgfd.wyo.gov/WGFD/media/content/PDF/Fishing/AIS_STICKLEBACK_INFO.pdf. Accessed December 2020.
- . 2015. Standardized Definitions for Seasonal Wildlife Ranges. Available at: <https://wgfd.wyo.gov/WGFD/media/content/PDF/Get%20Involved/ShirleyRange-Definitions.pdf>. Accessed August 2021.
- . 2017a. Wyoming State Wildlife Action Plan. Available at: <https://wgfd.wyo.gov/Habitat/Habitat-Plans/Wyoming-State-Wildlife-Action-Plan>. Accessed May 2020.
- . 2017b. *Species of Greatest Conservation Need*. Available at: <https://wgfd.wyo.gov/WGFD/media/content/PDF/Habitat/SWAP/Wyoming-SGCN.pdf>. Accessed May 2020.
- . 2020a. *Cherokee Park Hunter Management Area*. Available at: <https://wgfd.wyo.gov/WGFD/media/content/PDF/Public%20Access/HMA/CherokeeParkRR.pdf?ext=.pdf>. Accessed August 2020.
- . 2020b. Hunter Management Areas. Available at: <https://wgfd.wyo.gov/Public-Access/Hunter-Management-Areas>. Accessed August 2020.
- . 2020c. Walk-In-Area Program. Available at: <https://wgfd.wyo.gov/Public-Access/Walk-In-Area-Rules>. Accessed August 2020.
- . 2020d. Walk-In Area Fishing Program. Available at: <https://wgfd.wyo.gov/Public-Access/Walk-In-Fishing>. Accessed August 2020.
- Wyoming Office of State Lands and Investments. 2020a. Oil and Gas Leases. Available at: <https://lands.wyo.gov/trust-land-management/mineral-leasing/oil-gas-leases>. Accessed May 2020.
- . 2020b. Solid Mineral Leases. Available at: <https://lands.wyo.gov/trust-land-management/mineral-leasing/solid-mineral-leases>. Accessed May 2020.
- Wyoming State Forestry Division. 2019. Interagency Dispatch Center Guide. Available at: <https://wsfd.wyo.gov/fire-management/county-fire-wardens>. Accessed September 2020.
- Wyoming State Geological Survey (WSGS). 2002. *Basic Seismological Characterization for Albany County, Wyoming*. Available at: <http://www.wrds.uwyo.edu/wrds/wsgs/hazards/quakes/seischar/Albany.pdf>. Accessed May 2020.
- . 2007. Geologic Map of the Laramie 30' × 60' Quadrangle. Laramie, Wyoming. 2007 update. Available at: <https://www.wsgs.wyo.gov/products/wsgs-2007-ms-77.pdf>. Accessed May 2020.
- . 2021. GIS Data. Available at: <https://www.wsgs.wyo.gov/pubs-maps/gis>. Accessed June 24, 2021.

- Wyoming State Historic Preservation Office (Wyoming SHPO). 1986. Dale Creek Crossing National Register form. Available at: <https://wyoshpo.wyo.gov/index.php/programs/national-register/wyoming-listings/view-full-list/366-dale-creek-crossing>. Accessed August 2021.
- . 2016. Historic Preservation in the Cowboy State: Wyoming’s Comprehensive Statewide Historic Preservation Plan, 2016-2026. Available at: <https://wyoshpo.wyo.gov/index.php/programs/planning-historic-contexts/historic-preservation-plan>. Accessed January 2021.
- . 2020. Re: Initiation of Section 106 Consultation for the Proposed Rail-Tie Wind Project in Albany County, Wyoming, DBPR_WY_2020_5. Email communication to Western Area Power Administration (WAPA), Denver, Colorado, April 28, 2020.
- Wyoming Stock Growers Land Trust (WSGALT). 2019. Conservation Easements. Available at: <https://wsglt.org/conservation-easements/>. Accessed August 2020.
- Wyoming Weed and Pest Council. 2019a. Weed and Pest Declared List (By County): Amended April 2019. Available at: <https://wyoweed.org/noxious-species/listed-species/state-designated-noxious-weeds/>. Accessed May 2020.
- . 2019b. Wyoming Weed and Pest Control Act: State Designated Weeds and Pests. Available at: <https://wyoweed.org/noxious-species/listed-species/state-designated-noxious-weeds/>. Accessed May 2020.
- Yang, L., S. Jin, P. Danielson, C. Homer, L. Gass, A. Case, C. Costello, J. Dewitz, J. Fry, M. Funk, B. Grannemann, M. Rigge, and G. Xian. 2018. A New Generation of the United States National Land Cover Database: Requirements, Research Priorities, Design, and Implementation Strategies. *Journal of Photogrammetry and Remote Sensing* 146:108–123.
- Young, D.P., W.P. Erickson, R.E. Good, M.D. Strickland, and G.D. Johnson. 2003. *Avian and bat mortality associated with the initial phase of the Foote Creek Rim Windpower project, Carbon County, Wyoming*. Final report. Cheyenne, Wyoming: Western EcoSystems Technology, Inc.

APPENDIX A

RAIL TIE WIND PROJECT DESCRIPTION

Project Description

Rail Tie Wind Project

ConnectGen Albany County LLC

March 2020

Contents

1.0 Introduction	1
1.1 Project Overview	1
1.2 Project Components	1
1.2.1 Wind Turbine Generators	1
1.2.2 Access Roads.....	2
1.2.3 Crane Paths.....	3
1.2.4 Electrical Collection System	3
1.2.5 Electrical Substation and Switching Station	3
1.2.6 345kV Electric Transmission Line	3
1.2.7 Operations and Maintenance Facility	3
1.2.8 Meteorological Equipment.....	4
1.2.9 Construction Laydown Yards	4
1.2.10 Project Component Dimensions and Disturbance	4
1.3 ConnectGen’s Purpose and Need.....	5
1.4 Agency Actions and Permits.....	5
1.5 Environmental Monitoring.....	7
2.0 Construction.....	7
2.1 General Construction Description	7
2.1.1 Equipment	8
2.1.2 Roads and Turbine Pads.....	10
2.1.3 Electrical Collection System	11
2.1.4 Wind Turbine Foundations	11
2.1.5 Wind Turbine Installation	12
2.1.6 Met Tower Installation	12
2.1.7 Substation.....	12
2.1.8 Transmission Line	13
2.1.9 O&M Building.....	13
2.1.10 Laydown Yard.....	13
2.1.11 Construction Schedule	13
2.2 Construction Preparation Activities	14
2.2.1 Housekeeping.....	14
2.2.2 Truck Deliveries.....	14
2.2.3 Transmission Line Crossings (Vehicle Traffic).....	15
2.2.4 Fencing.....	15
2.2.5 Surveying and Staking.....	15
2.2.6 Geotechnical Sampling.....	15
2.3 Civil Construction Activities	16
2.3.1 Clearing and Grubbing	16
2.3.2 Site Grading.....	16
2.3.3 Rock Removal/Blasting	16
2.3.4 Road Base Construction.....	17
2.3.5 Excavation	17
2.3.6 Compaction	18
2.3.7 Trenching.....	18
2.3.8 Stormwater Pollution Prevention	18
2.4 Structural Construction Activities.....	18
2.4.1 Concrete Supply	18
2.4.2 Steel Placement	19
2.4.3 Formwork.....	19

2.5	Electrical Construction Activities.....	19
2.5.1	Buried Cable Placement.....	19
2.5.2	Grounding.....	20
2.5.3	Buswork And Electrical Line Connections.....	20
2.5.4	Communications Systems Installation.....	20
2.5.5	Aviation Lighting on Wind Turbines.....	20
2.6	Wind Turbine / Met Tower Erection.....	21
2.6.1	Turbine Component Delivery and Storage.....	21
2.6.2	Crane Movement or Assembly.....	21
2.6.3	Wind Turbine Component Lifts.....	21
2.6.4	Met Tower Installation.....	22
3.0	Operation & Maintenance.....	22
3.1	Operation Activities.....	22
3.1.1	Project Administration.....	22
3.1.2	Orientation and Training.....	22
3.1.3	Wind Farm Performance Monitoring.....	23
3.2	Maintenance Activities.....	23
3.2.1	Project Drive-By Inspections.....	23
3.2.2	Scheduled Wind Turbine Maintenance.....	24
3.2.3	Unscheduled Wind Turbine Maintenance.....	24
4.0	Decommissioning.....	25
4.1	Wind Turbine / Met Tower Removal.....	25
4.1.1	Crane Movement and Assembly.....	26
4.1.2	Wind Turbine / Met Tower Disassembly.....	26
4.1.3	Component Removal.....	26
4.2	Electrical System Removal.....	26
4.2.1	Buried Cable Removal.....	26
4.2.2	Substation Disassembly and Equipment Removal.....	27
4.2.3	Transmission Line Removal.....	27
4.3	Operations and Maintenance Building Removal.....	27
4.4	Structural Foundation Removal.....	27
4.5	Civil Decommissioning Activities.....	27
4.5.1	Road Removal.....	27
4.5.2	Re-Grading and Re-Vegetation.....	28
5.0	Environmental Protection Measures.....	28
5.1	Project Plans.....	28
5.2	Measures.....	29
6.0	References.....	41

Tables

TABLE 1-1: Potential Turbine Specifications	2
TABLE 1-2: Project Component Dimensions and Ground Disturbance	4
TABLE 1-3: Environmental Permits, Approvals, and Consultations	5
TABLE 2-1: Anticipated Construction Equipment	8
TABLE 2-2: General Road Specifications	10
TABLE 2-3: Typical Construction Schedule of Wind Energy Projects	14
TABLE 5-1: Environmental Protection Measures	30

Figures

FIGURE 1: Project Area
FIGURE 2: Project Siting Corridors
FIGURE 3: Representative Project Layout (3 MW turbine)
FIGURE 4: Representative Project Layout (6 MW turbine)

1.0 Introduction

The Rail Tie Wind Project (Project), is a proposed utility-scale wind energy facility under development by ConnectGen Albany County LLC (ConnectGen). The Project is located in southeastern Albany County, Wyoming, and encompasses approximately 26,000 acres of ranchland on private and Wyoming State Lands located near Tie Siding, Wyoming (Project Area). No federally-managed lands are located within the Project Area (Figure 1).

ConnectGen has applied to interconnect the Project to the existing Craig to Ault 345 kilovolt (kV) transmission line that intersects the Project Area, under the Western Area Power Administration's (WAPA) Large Generator Interconnection Process (LGIP). The Craig to Ault line is jointly owned by WAPA, Tri-State Generation and Transmission Association, and Platte River Power Authority. In accordance with its Open Access Transmission Service Tariff, WAPA's consideration to grant an interconnection request is a federal action subject to environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA), U.S. Department of Energy (DOE), and the Council on Environmental Quality (CEQ) NEPA implementing regulations.

1.1 Project Overview

ConnectGen has prepared this Project Description to provide WAPA with information on the scope of the Project, including the features that would comprise the Project as well as associated construction, operation, and maintenance activities. The intention is to provide relevant Project information to support the preparation of WAPA's NEPA document.

The Project would have a generating capacity of up to 504 megawatts (MW) of renewable energy. For construction planning and site optimization, the Project consists of two separate Phases, each approximately 252 MW. Construction of the Project is expected to begin in 2021, and both phases could be fully operational by the end of 2022. As is common with large wind projects, the Project may require two years to fully construct. If additional time is required for construction, it is anticipated that the first 252 MW phase would be completed and fully operational by the end of 2022, with the second phase operational in 2023.

To support analysis of potential resource impacts from the Project, various studies and associated field work will be conducted. These studies will include review of resources such as visual, noise, land use, air quality, wildlife, and other environmental resources.

1.2 Project Components

The Project would include the following components and equipment:

1.2.1 Wind Turbine Generators

The wind turbines would be arranged in collinear strings located within 1,000-foot wide wind turbine siting corridors (Figure 2, Project Siting Corridors). This corridor design approach provides flexibility in turbine placement during the design phase to avoid and minimize impacts wetlands, waterbodies, cultural sites,

and other environmentally sensitive areas, to the extent practicable. Access roads and electrical collection lines will also be located within these corridors where feasible to minimize the Project's overall footprint. For the portions of the Project where it is not feasible to locate the access roads and electrical collection lines within the turbine string corridors, 100-foot and 50-foot wide siting corridors respectively will be used in these areas (Figure 2, Project Siting Corridors). The precise locations of each turbine within the corridor would be based on the wind turbine model selected, various siting criteria such as optimal wind speed, geotechnical conditions, environmental considerations, and landowner requested setbacks. For reference, Figures 3 depicts a Representative Project Layout for a 3 MW turbine model, and Figure 4 depicts a Representative Project Layout for a 6 MW turbine model.

Between 84 and 149 turbines would be included in the Project. The total number of wind turbines will depend on the turbine model selected and final design. ConnectGen is currently considering several turbine models with capacities between 3 MW and 6 MW each. Each turbine, with associated foundations and equipment, would have a permanent physical footprint of approximately 0.1 acre and a vertical height up to 675 feet, depending on the turbine type selected.

Of the several turbine models being considered by ConnectGen, the smallest model would be the General Electric Company (GE) 3.0 MW, and the largest would be the Siemens Gamesa 6.0 MW or the Vestas 5.6 MW. The turbine specifications for each of these models are provided in Table 1-1, Potential Turbine Specifications. As shown in the table, the specifications of the turbine models are similar, and thus many of the potential resource impacts associated with each turbine model would be anticipated to be similar. It is also expected that the specifications associated with a selected turbine model with a capacity between 3.0 MW and 6.0 MW would fall within the range of dimensions outlined in in Table 1-1, Potential Turbine Specifications. Regardless of the turbine model selected, all turbines would be sited within the 1000' siting corridors depicted in Figure 1-2, Project Site Plan.

TABLE 1-1: Potential Turbine Specifications

Turbines	GE 3.0 MW	Vestas 5.6 MW	Siemens Gamesa 6.0 MW
Tower Type	Tubular	Tubular	Tubular
Blade (Rotor) Diameter	127 m	162 m	170 m
Hub Height	89 m	125 m	115 m
Total Turbine Height	152.5 m	206 m	200 m

1.2.2 Access Roads

Temporary and permanent access roads including new, improved, or existing access roads, may be necessary for both construction and operation of the Project. New, permanent all-weather access roads would be needed to access each wind turbine location during operations, and existing or improved public roadways may be used as well. Based on initial estimates, approximately 60 miles of new all-weather access roads would be needed for the Project.

1.2.3 Crane Paths

A crane path, which is compacted ground that is used to “walk” the cranes to each turbine pad site during construction, will generally be co-located with the access roads. In addition, there will be several dedicated crane paths that are located cross country in an area away from any permanent access road. Crane paths are temporary and will be decompacted and reclaimed once construction of the Project is complete.

1.2.4 Electrical Collection System

Underground collection lines are proposed to connect wind turbines and deliver power from each turbine to the Project substations. If necessary due to the geology or topography, overhead collection lines may be used in some areas. Underground collection typically entails 34.5kV electric cable buried to a depth of approximately 48 inches, while overhead collection consists of 34.5kV electric lines strung from vertical wooden monopoles typically 50-80 feet tall. The total length of collection would be determined based on the final design and siting of turbine arrays and substations but could include up to 80 miles of collection facilities.

1.2.5 Electrical Substation and Switching Station

The Project would include two 345kV substations, one for each phase of the Project. Each substation site would encompass a fenced area of up to 5 acres, containing one to two main power transformers depending on the phase.

A 345kV switchyard would be required to connect both phases of the Project to the existing Craig to Ault 345kV transmission line. The switchyard would be designed based on the findings of WAPA’s facilities studies; however, a typical 345kV switching station encompasses a fenced area of up to 8 acres of land.

1.2.6 345kV Electric Transmission Line

Approximately 4 miles of new single circuit, 345kV overhead transmission lines would connect the two Project substations to the WAPA switchyard. The transmission line structures would likely be wood H-frame or steel monopoles, as determined based on final engineering and design of the transmission line. Structure height would typically be 100 to 125 feet but may vary depending on terrain.

1.2.7 Operations and Maintenance Facility

A single operations and maintenance (O&M) building is proposed for the Project. The proposed O&M facilities would include an approximately 7,000-square foot building, complete with sanitary and electrical services, located within an approximately 5-acre security fenced area. A permanent water well may be used to supply the O&M building.

1.2.8 **Meteorological Equipment**

At least three 105-meter tall meteorological towers would be constructed for the Project. Meteorological towers would likely be self-supported, lattice-mast style towers. ConnectGen has identified 12 potential met tower locations but will select the final locations upon selection of a turbine type and finalization of Project Design.

1.2.9 **Construction Laydown Yards**

Two temporary laydown yards of approximately 15 acres each would be prepared during the construction period for each phase of the Project. If necessary, additional smaller laydown yards of 2 acres each may be used through the Project Area. The laydown areas would consist of graveled storage and parking areas, which would be reclaimed following completion of construction. Concrete batch plants, as needed would be located within the construction laydown yards. If required, water for the batch plants could be acquired from temporary water wells or hauled from available water sources located nearby. All water use would comply with county and state permitting requirements.

1.2.10 **Project Component Dimensions and Disturbance**

Table 1-2 below provides the typical facility dimensions and anticipated temporary and permanent ground disturbance from construction of the Project.

TABLE 1-2: Project Component Dimensions and Ground Disturbance

Project Component	Construction Dimensions	Operation Dimensions	Number of Units	Estimate Acres of Temporary Disturbance	Estimate Acres of Permanent Disturbance
Wind Turbine Generators	250 ft x 350 ft	30 ft radius	149	299	10
Access Roads	Up to 100 ft width	20 ft width	58 miles	698	140
Underground Collection System	50 ft width	N/A	77 miles	431	0
Electrical Substation	7 acres	5 acres	2	14	10
Interconnection Switchyard	10 acres	8 acres	1	10	8
345kv Electric Transmission Line	100 ft width	20 ft width	4.4 miles	53	11
Operations and Maintenance Facility	7 acres	5 acres	1	7	5
Meteorological Equipment	200 ft x 200 ft	20 ft x 20 ft	3	3	0.03
Construction Laydown Yards	15 acres	0 acres	2	30	0
Crane Paths	100 ft width	0 acres	14.5 miles	179	0

1.3 ConnectGen’s Purpose and Need

ConnectGen proposes to construct and operate a wind power generation facility in Albany County, Wyoming. The Project would interconnect with the Western Area Power Administration transmission system with a new interconnection to the 345 kV Craig to Ault transmission line near the town of Tie Siding, WY. ConnectGen has made interconnection requests and transmission service requests in accordance with Western’s Open Access Transmission Service Tariff (Tariff) and the Federal Power Act, as amended (FPA).

The Project is a renewable energy project that would result in no carbon, sulfur, nitrogen, or mercury air emissions. In addition, the Project would not consume water resources in the process of generating wind energy, nor would it produce substantial quantities of solid waste.

ConnectGen’s purpose for the proposed Project is to generate clean, renewable energy in response to increasing market demand. Thirty-seven states now have a renewable portfolio standard (RPS) or goal for the amount of electricity produced by renewable energy sources, such as wind, solar, biomass, and geothermal sources. In addition to the demand driven by state RPS mandates and clean energy goals, there is increased demand from western load-serving entities as a result of the low cost of wind energy and planned retirements of thermal generation plants. Many western utilities have announced ambitious plans to add large amounts of renewable energy to their portfolios in the coming years. These drivers of demand create a dynamic marketplace in which wind energy can be generated in one location and transmitted to another location in response to market conditions and power purchase agreements between the wind energy developer and the utility or large-scale consumer purchasing the electricity. The proposed Project is complementary to ConnectGen’s renewable energy generation strategy and will contribute to the generation resource pool needed to meet future load and regional RPS requirements.

1.4 Agency Actions and Permits

The ConnectGen Project will require actions from a variety of local, state, and federal agencies. These actions include Project approvals and issuance of permits, as detailed below and in Table 1-3. This is a preliminary list, as additional requirements may be identified as the Project design is finalized.

TABLE 1-3: Environmental Permits, Approvals, and Consultations

Permit/Clearance	Lead Agency	Description
Federal		
National Environmental Policy Act (NEPA)	WAPA	Preparation of an environmental impact statement under NEPA
Clean Water Act, Section 401 and Clean Air Act Coordination	U.S. Environmental Protection Agency (EPA)	Coordination with EPA during the NEPA process to address any concerns with protecting water and air quality. EPA is charged with reviewing and commenting on EIS’s in the NEPA process.
Clean Water Act Section 404	U.S. Army Corps of Engineers (USACE) - Wyoming Regulatory Office	Required when dredging or filling waters of the U.S. and wetlands. Project activities may qualify for coverage under an applicable Nationwide Permit if Section 404 authorization is needed.

Permit/Clearance	Lead Agency	Description
Endangered Species Act, Section 7 Consultation, and Migratory Bird Treaty Act	USFWS - Wyoming Field Office	Consultation with USFWS regarding threatened and endangered species and discussions regarding migratory birds.
Bald and Golden Eagle Protection Act	USFWS – Wyoming Field Office	Coordination with USFWS regarding potential impacts to bald eagles and golden eagles. Coordination on the implementation of USFWS’s Eagle Conservation Plan Guidance.
National Historic Preservation Act (NHPA), Section 106 Consultation	Advisory Council on Historic Preservation (ACHP)	Comment on the proposed project’s impacts on historic properties; ACHP typically delegates this consultation requirement to the appropriate State agency.
Obstruction Evaluation/Airport Airspace Analysis Notice of Proposed Construction or Alteration Determination of Hazard or No Hazard	Federal Aviation Administration (FAA) - Northwest Mountain Region	An Obstruction Evaluation/Airport Airspace Analysis filing must be made online. Following review, a Notice of Proposed Construction or Alteration form (FAA 7460-1) must be submitted prior to construction to ensure wind turbines will not interfere with aviation. Siting near a military or civilian airfield may trigger an analysis of possible impact of turbine towers on radar from airfields. FAA will provide a Hazard/No Hazard Determination and may require lighting on turbines to address potential hazards.
State		
Industrial Siting Permit	Wyoming Industrial Siting Council	The Industrial Siting Council is tasked with reviewing the socio-economic and environmental impacts of industrial facilities prior to issuing a construction permit. The Council requires a permit if the project cost is greater than 178.9 million dollars, based on the potential build out for the site. The Project would require an Industrial Siting Permit.
New Source Construction (Air Quality) Permit	Wyoming Department of Environmental Quality (DEQ) - Air Quality Program	This air emissions permit is required prior to the construction of a concrete batch plant.
Construction Storm Water Permit Section 401 Water Quality Certification	Wyoming DEQ – Water Quality Division	The Project will need to obtain a permit for authorization of storm water discharges associated with construction activities. Wyoming DEQ is responsible for issuing water quality certification for permits authorized under Section 402 and 404 of the Clean Water Act.
State-Designated Species Consultation	WGFD	Coordination with WGFD regarding state-designated Species of Greatest Conservation Need (SGCNs).
NHPA Section 106 Consultation	Wyoming State Historical Preservation Office (SHPO)	Consultation with SHPO regarding Project impacts to historic properties.

Permit/Clearance	Lead Agency	Description
Water Rights Permit	Wyoming State Engineer's Office	Permit will be necessary for certain water withdrawals.
Native American		
Section 106 Consultation	Tribal Historic Preservation Office	WAPA will initiate tribal consultation during the NEPA process.
Local		
Land Use Change Permit, Wind Energy Conversion System (WECS) Permit, Road Access Permit, Utility Crossing Permit	Albany County	Permits may be required from Albany County for road use, utility crossings, zoning changes, and the installation of a wind farm larger than 25kW. Consultation has already started.

1.5 Environmental Monitoring

ConnectGen will develop an environmental monitoring program that describes all necessary actions required by the various permits issued for the project. ConnectGen will be responsible for meeting conditions of any permits and assuring that necessary environmental monitoring activities are being performed. The environmental monitoring program will incorporate monitoring observations and additional mitigation measures as needed into construction practices and standard operating procedures for the Project. The environmental monitoring program would be developed to meet the standards or regulatory requirements of permitting agencies or governing bodies.

2.0 Construction

This section describes typical construction practices for a utility-scale wind energy project. Information is based on ConnectGen and industry knowledge, and input from third party engineering firms. Construction practices could vary depending on final engineering, design, and site-specific conditions.

2.1 General Construction Description

In developing the Project design, ConnectGen intends to minimize environmental impacts resulting from the Project and maintain industry safety standards, while managing cost and schedule. This approach would be realized by completing environmental resource studies to identify potential sensitivities and constraints to be considered during the siting and design stage and developing environmental protection measures to avoid, minimize, and mitigate impacts during the construction, operation, and decommissioning phases of the project. ConnectGen will adopt certain construction best practices to reduce ground disturbing activities, such as minimizing the cut and fill required for roads and foundations, and the use of as much excavated native soil and rock as possible. ConnectGen will also apply the concept of adaptive planning and design that when applied to the Project, would minimize significant adverse impacts to the natural characteristics of the site.

Before construction begins, each area of proposed ground disturbance will be inspected to evaluate existing conditions. To the extent possible, upon completion of construction activities, revegetation and reclamation would be conducted within disturbed areas in order to return the site to near pre-construction conditions. This effort would include activities such as conservation and reapplication of topsoil, seeding areas of bare soil, applying weed control measures, and returning land contours and drainage to pre-construction conditions.

ConnectGen will limit public access to the site during construction activities in order to assure public and worker safety. Public access would be limited during activities such as wind turbine erection, foundation excavation, electrical collection system trenching, and substation construction and interconnection. Access would be limited on roads in these areas by narrowing down the road to one lane of public traffic with flaggers used to direct the flow of traffic or suspending traffic for safe movement of large equipment. The intention would be to keep road closures to a minimum to the extent feasible.

2.1.1 Equipment

Table 2-1 lists the types of equipment needed for Project construction, the purpose of each equipment type, and their anticipated numbers.

TABLE 2-1: Anticipated Construction Equipment

Purpose or Phase of Construction	Equipment Type	Anticipated Amount of Equipment
Road Construction (2 crews)	Bulldozer	4
	Hoe and Ram Hoe	2
	Haul Truck	15
	Grader	2
	Compactor	3
Foundation Excavation (5 crews)	Hoe and Ram Hoe	4
	Air Drill	2
	Bulldozer	2
	Compactor	2
Rebar (2 crews)	Picker	3
	Telehandler	2
Concrete Placement (1 crew)	Belt Truck	2
	Telehandler	2
	Concrete truck	12-18
Foundation Backfill (3 crews)	Bulldozer	4
	Compactor	2
Wind Turbine Unloading (1 crew)	Crane	1
	Picker	2
	Telehandler	3

Purpose or Phase of Construction	Equipment Type	Anticipated Amount of Equipment
Wind Turbine Base Installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6
Wind Turbine Tower Installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6
Wind Turbine Nacelle/Rotor Installation (1 crew)	Crane	2
	Picker	2
	Telehandler	6
	Dozer	2
	Haul Trucks	6
	Manlift	2
Collection System (1 crew)	Trencher	2
	Bulldozer	2
	Hoe	4
	Haul Truck	2
	Cable Truck/Trailer	2
Substation (1 crew)	Drill Truck	1
	Bulldozer	1
	Picker	1
	Hoe	2
	Bucket Truck	2
	Pole Truck	1
Miscellaneous (1 crew)	Picker	2
	Telehandler	4
	Water Trucks	3-4
	Grader	1
	Fuel/Lube Truck	1

Heavy vehicle traffic is expected on the Project site during construction. Dump trucks, for example, would be needed to move soil and aggregate. Concrete trucks would be needed for wind turbine foundations and other facilities. Water tankers would be needed to wet down roadways for dust control. The crane needed for wind turbine installation would be assembled at the first wind turbine site and then would be “walked” to subsequent wind turbine sites along the Project access roads. Where the road cannot be built within the tolerances required for walking the crane, the crane would be disassembled, moved to the next wind turbine site, and reassembled.

2.1.2 Roads and Turbine Pads

For construction crews and equipment to reach each wind turbine location, roads will need to be constructed, extended and/or improved throughout the Project site. Existing roads will be used to the extent possible; however, new access roads will need to be constructed to turbine sites, the O&M building, and the Project’s substations. Access roads will be sited to reduce ground disturbance, minimize adverse impacts to sensitive resources (e.g., wetlands, cultural resource sites, sensitive habitat, etc.) and optimize transportation safety and efficiency during construction and maintenance activities. In general, access roads will likely be sited within the 1,000-foot turbine corridors. For the portions of the Project where it is not possible to locate the access roads and electrical collection lines within the turbine string corridors, 100-ft-wide access road and 50-ft-wide collection line corridors will be used for purposes of adaptive planning and design. Depending on the turbines selected, approximately 60 miles of new access roads would be required.

Access roads would be needed during construction and operation to access the following permanent Project facilities: turbines, met towers, substations, and the O&M building.

A crane path, which is compacted ground that is used to “walk” the cranes to each turbine pad site, will generally be co-located with the access roads. In addition, there will be several dedicated crane paths that are located cross country in an area away from any permanent access road. Crane paths are temporary and will be decompacted and reclaimed once construction of the Project is complete.

Trucks bringing wind turbine components to the site will likely be extra-long (for blade transport) and heavy-load (for wind turbine nacelles). For these trucks to reach the site, some road improvements may need to be completed on existing county, state and private roads. Specifically, turns in existing roads, such as Cherokee Park Road/County Road (CR) 31, may need to be widened to allow access for the extra-long trucks.

The design of the roads will consider the flow of the natural contours; however, modifications may be made in order to maintain safety during construction and maintenance activities. Table 2-2 provides general road specifications.

TABLE 2-2: General Road Specifications

Characteristic	Specification
Maximum slope	8%-14% for access roads
Maximum width (construction)	Up to 100 feet, including crane path
Maximum width (post construction)	20 feet
Minimum turn radius	200 feet
Road surface	All-weather gravel
Speed limit	25 miles per hour on access roads and 15 miles per hour on wind turbine string roads

Construction zones of 250 feet by 300 feet will be established around each wind turbine site. This area would need to be clear and level enough to allow for the wind turbine components to be delivered and for a crane to be set up. Construction would be designed to minimize the amount of workspace required at

each turbine site. To the extent practicable, a minimal amount of vegetation would be removed to allow for turbine component delivery. Typically, the pad constructed for the crane requires the same amount of work as the roads, although these pads would be reclaimed to as near as practicable to preexisting conditions once construction of the turbine is complete.

Once the construction of the Project is complete, reclamation would be performed in areas disturbed by construction activities. The cut material accumulated during road construction will likely be used to return contours to pre-construction conditions, as practicable. Any remaining fill material will be distributed across the Project site in a manner that will not adversely affect dust and erosion, change drainage conditions, or impact any sensitive vegetative communities. Any exposed areas that are not covered by road materials will likely be revegetated using an approved native seed mixture or landowner-preferred mixture. Noxious weed control would continue onsite during the revegetation process and during the Project's operation.

2.1.3 Electrical Collection System

Each wind turbine will be connected to underground electrical collection lines to allow the generated energy to be sent to the Project substations. These collection lines are anticipated to be direct-buried (rather than placed in conduit) using cable specifically designed for this application. The voltage of this system will likely be 34.5 kV. Typically, the cables would be buried directly into native soil onsite. However, if the native soil does not provide enough thermal conductivity (i.e., to allow heat to dissipate from the cables), engineered backfill may be used. This engineered backfill will be a soil type capable of efficiently dissipating heat from the cables. The engineered backfill will only be used in the cable trenches, and only in amounts needed to achieve heat dissipation from the cables. The engineered backfill will be weed and seed free. The remaining depth of the trenches would then be backfilled with native materials, and re-contoured to pre-construction conditions and revegetated with native seed, or landowner-approved seed mixture. ConnectGen may need to use blasting techniques if rock strength exceeds typical excavation limits. If underground electrical lines are not technically or economically feasible in some areas, overhead electrical lines will be used. The overhead collection line structures will be wooden or steel monopole and would be 50 to 80 feet in height. Depending on the turbine selected, approximately 80 miles of collection lines will be required.

To the extent possible, the electrical collection system will be collocated with access roads in areas likely already disturbed by the road construction. For areas near the substations where several runs of cable may be required, cable trenches may be placed on both sides of the road. In some areas, a collection line will be installed cross country in an area not located next to existing or planned access roads. In these situations, the collection line would be installed in a manner as described above, and then re-contoured to pre-construction conditions and revegetated with native seed, or landowner-approved seed mixture.

2.1.4 Wind Turbine Foundations

The wind turbine foundation anchors the wind turbine structure securely to the ground. Typically, the construction of the wind turbine foundations constitutes the largest volume of earth excavation associated with a wind power project, although some foundation designs allow for much of the excavated material to be backfilled in and around the foundation itself. Depending on the turbine type selected, the Project will contain 84 to 149 turbine pads.

Two foundation designs are typically used for wind turbine installations in the U.S.; the specific foundation used for individual turbine locations would be determined by the soil conditions and wind turbine

requirements. The first foundation type is a “mat” foundation. The second foundation type is a “pier” foundation. Mat foundations are wide and shallow, and pier foundations are narrow and deep. Mat foundations are typically 60- to 80-foot diameter octagons with an approximate depth of 10 to 12 feet. Pier foundations are typically 15 to 18 feet in diameter with an approximate depth of 30 to 40 feet. There are variations on these foundations, and the exact foundation type to be used cannot be determined until a final turbine type is chosen and a detailed geotechnical investigation is completed. Due to the expected soil conditions in the Project Area, the Project will most likely use the “mat” foundation type.

The turbine base consists of a metal ring and series of anchor bolt connections to fasten the wind turbine tower to the foundation. The turbine base is cast into the concrete reinforced structure that makes up the remainder of the foundation. An electrical grounding mat is typically cast in place when the concrete for the foundation is poured. The casting and the subsequent backfilling of the foundation is usually done prior to the delivery of the wind turbine components to allow the lowest sections of the wind turbine tower to be directly placed upon delivery.

2.1.5 Wind Turbine Installation

Installation of wind turbines requires specialized equipment and crews, and careful planning. During construction, turbine components will be delivered directly to each installation location as they arrive at the Project. Lower tower sections will be set in place immediately on the foundation, with the remaining components placed around the tower site in planned laydown arrangements. Crane crews will erect the turbines once all components arrive at the turbine location to minimize the amount of time the equipment is on the ground. Exceptions may occur if components arrive before the turbine location is available (e.g., due to snow on the site or other temporal constraints that prevent construction from occurring at that time). In this instance, some components may be placed at a temporary laydown area until turbine site access and crews are available to move and erect the turbine.

2.1.6 Met Tower Installation

ConnectGen will install at least three permanent met towers within the Project site to collect accurate meteorological data used to track the performance of the wind turbines. Such data will include wind speed and direction, barometric pressure, humidity, and ambient temperature. Each tower would be assembled onsite. Meteorological towers would likely be self-supported, lattice-mast style towers.

2.1.7 Substation

The electrical collection system will deliver the power to one of the two Project substations. The Project substations would each be up to 5 acres in size. At the substation, the voltage of the energy will be stepped up from the collection system voltage of 34.5 kV to the transmission voltage of 345 kV. Capacitor banks and other equipment would be installed at each substation to provide the voltage support necessary to meet the interconnection requirements for the Project as determined by WAPA. A small control building would be built within each substation yard to house electrical metering equipment and the SCADA system for the wind turbines.

2.1.8 Transmission Line

Approximately 4 miles of new single circuit, 345 kV overhead generation tie (gen tie) line would connect the two Project substations to the WAPA switchyard. The transmission line structures would likely be wood H-frame or steel monopoles, as determined by final engineering and design of the gen tie line. Structure height would typically be 100 to 125 feet but may vary depending on terrain. The gen tie line will be designed in consideration of Avian Power Line Interaction Committee guidance to avoid and minimize impacts to avian species.

2.1.9 O&M Building

ConnectGen will construct an O&M building in the Project Area. This building will house storage for spare parts, offices for wind farm staff, conference rooms, computers, telecommunications and control equipment for the wind turbines, SCADA equipment, emergency lodging quarters, and shop facilities. There will also be a parking lot and temporary laydown area. This building will likely be pre-engineered and assembled and finished onsite. The O&M building will be painted in an earth-tone color (such as light tan) conducive to the local site conditions. The O&M building will also have offices, break room and bathrooms, and if connection to a sewer system is not feasible at the building site, a septic system will be installed. A supply of potable water for the O&M building will be provided through a connection to a nearby existing well or installation of a new well, as feasible.

2.1.10 Laydown Yard

ConnectGen will develop two construction laydown yards of approximately 15 acres each that would be developed in the Project Area where most general construction materials would be offloaded and stored. Additional smaller laydown yards of approximately 2 acres each may be developed within the 1000' turbine siting corridors as necessary. The intent is for wind turbine components to be delivered directly to the pad site where they will be installed; although deliveries received before the turbine pads are available (either due to weather, road construction, or crew availability) would be off-loaded in the nearest laydown yard. Materials needed for the potential concrete batch plant, substation construction, or electrical collection system construction would be offloaded near the location of their intended use.

2.1.11 Construction Schedule

The exact schedule of construction has not yet been developed, and is dependent on completion of WAPA's NEPA review and acquisition of all necessary permits for the Project. Other factors that may impact the construction schedule include weather-related construction constraints, the type and number of wind turbines ConnectGen elects to use, the required in-service date for the Project as determined by WAPA, and supplier delivery dates for turbines and components. The outdoor construction season is weather-dependent, but generally is from March to November, with demobilization of outdoor work in November. Any interior work, such as commissioning of the wind turbines and finishing work on the O&M building and substation, could continue during the winter months. In general, a typical schedule for the construction of wind energy projects of this scale is shown in Table 2-3, Typical Construction Schedule of Wind Energy Projects.

TABLE 2-3: Typical Construction Schedule of Wind Energy Projects

Activity	Duration (months)
Mobilization	1
Access Roads and Laydown Areas Completed	2-6
Substation Construction	4-6
O&M Building Construction	3-6
Transmission Construction	3-6
Foundations	4-6
Wind Turbine Erection	4-6
Commissioning	2-3
Acceptance Testing	2-3

Many of these activities will take place concurrently. Schedule would vary with the number of turbines to be installed.

2.2 Construction Preparation Activities

2.2.1 Housekeeping

Good housekeeping can drastically increase occupational health and safety and minimize the environmental impacts of the Project. At the end of each work shift, debris will be removed from active construction areas and taken to designated trash collection areas for proper disposal. Materials still needed at the turbine site will likely be assembled and secured at the site, and materials no longer needed will likely be returned to the construction laydown areas.

An area located near the potential concrete batch plant will be designated for “washing out” concrete trucks. The location would be determined through coordination with applicable agencies, and the wash out area would be cleaned and returned to a natural state at the end of construction.

2.2.2 Truck Deliveries

Heavy vehicle traffic is expected to access the site during most of the construction phase of this Project. Many of these vehicles will be specialized vehicles for turbine component delivery (such as the blade trucks). Normal heavy-duty truck traffic on site will include concrete trucks used for delivering concrete for the construction of the turbine bases, dump trucks to move soil and rock from base excavations, and water tankers to wet down the site roads and graded areas for dust control. Signs on the public roads utilized by heavy trucks would be erected warning the public of the increased heavy construction traffic on these roads. When possible, delivery times would be coordinated with the use patterns of the roads to avoid traffic congestion and increase safety. It is anticipated that trucks would be dispatched from Laramie and/or Cheyenne, Wyoming, depending on where rail deliveries are made, or where other materials are supplied from. All deliveries made to the Project Area will be required to conform to all WYDOT and United States Department of Transportation (USDOT) regulations.

2.2.3 Transmission Line Crossings (Vehicle Traffic)

The need for vehicles to cross under the existing WAPA transmission infrastructure that transects the Project Area will require careful marking and/or lighting plans to protect WAPA's transmission infrastructure and ensure crew and equipment safety.

2.2.4 Fencing

ConnectGen plans to install fencing around those areas where public safety risks exist and site personnel are not available to control public access (such as excavated foundation holes, electrical collection system trenches, and laydown areas). At the end of work shifts, open pits, trenches, and holes will be covered or fenced to deter wildlife from becoming trapped or injured. Other areas deemed hazardous, or where issues with security or theft are of concern, may also be fenced. The Project substations will be permanently fenced for safety.

If temporary fencing is needed for laydown areas, the fencing will likely be of chain-link design. Temporary fencing around unfinished turbine bases are normally designed to warn people of the potential danger more than to bar access, and therefore this fencing is typically a high visibility plastic mesh. In instances where livestock have access to the turbine site, excavations will potentially be fenced with chain-link or other livestock fencing. Permanent fencing around the substation will be of a sturdy design.

2.2.5 Surveying and Staking

Construction staking will be one of the first construction activities associated with the Project during which turbine micro-siting will occur. Field crews will use survey equipment and GIS data to locate points in the field that correspond to the locations of project components identified on the engineering layout for the Project. When a critical point is found, it is marked with a survey stake (usually a wooden stake with a colored plastic flag, driven into the ground one to two feet). The point location is usually accessed by a pick-up truck or similar vehicle, and teams of two or more walk across the site to perform the surveying and staking.

Once staking is completed, a walkthrough would be completed by the construction manager, design engineer and project manager to confirm that existing conditions have not changed from when the detail design was completed. Typically, the biologist and archaeologist are also present to identify any potential issues that may be present. During the walkthrough, if constraints are noted, the construction manager and design engineer will consider whether the use of adaptive planning is appropriate.

2.2.6 Geotechnical Sampling

The geotechnical investigation will characterize the depth and strength of the subsurface soil structures to determine dynamic properties for the individual turbine foundation designs, and to understand the soil characteristics for heat dissipation where electrical collection infrastructure will be placed. This work will be in addition to any previous borings and test pits that may have been completed in the Project Area. The investigation will consist of coring specific locations along the turbine strings and collection line routes. Coring would be completed using geotechnical drilling equipment mounted to either a truck or

tracked vehicle. The coring process will provide samples that will be logged, and discrete samples will be collected for laboratory strength testing. The coring process leaves holes at the test site approximately three inches in diameter and up to 40 feet deep. Upon completion, borings will be backfilled in accordance with State and local requirements. Test pits dug with a backhoe or similar equipment may also be used to evaluate whether the bedrock can be excavated.

2.3 Civil Construction Activities

2.3.1 Clearing and Grubbing

Where necessary, clearing work will include clearing and removing trees, cutting and removing all brush, shrubs, debris, and vegetation to approximately flush with the ground surface; and disposal of all cuttings and debris. Cuttings and debris will likely be mulched or chipped on site and used for ground stabilization or disposed of in an approved facility designed to handle such waste.

Grubbing work will include the complete removal and disposal of all stumps and roots larger than approximately two inches in diameter, including matted roots, regardless of size. Grubbing will extend to a minimum depth of approximately four inches below the natural surrounding ground surface.

All excavations made by clearing and grubbing activities will be backfilled with compacted earth/aggregate available onsite.

Typically, clearing and grubbing activities will be needed for all site development activities. However, because the site lacks significant forested vegetation and cover, these activities are expected to be minimal.

2.3.2 Site Grading

ConnectGen plans to prepare a detailed grading plan that will describe the methods that will be employed during Project construction. The plan will describe the stepwise activities required for the project. Complete road grading would be carried out first to allow access to other Project features. The roads will be installed based on the lines and grades indicated on the detail design drawings and confirmed during survey and staking. Rough grading of the laydown areas, turbine pads, substation pads, and O&M building pad will begin at the same time or shortly after roads are graded. The completed facilities will be done after construction is complete. The final grading would provide a smooth uniform surface and minimize the impact to existing drainage patterns. The overall goal of the detail design and grading plan is to achieve balanced cut and fill, which will reduce the amount of fill material that will be transported in or out of the Project Area.

2.3.3 Rock Removal/Blasting

Geotechnical investigations will be performed to support the final engineering and design of the Project, and will be used to inform the excavation requirements, such as whether blasting and rock removal will be necessary. If blasting and excavation is needed, all activities would be conducted in accordance with applicable regulations and modern industry practice, using methods and techniques that will minimize

overbreak beyond the limits indicated on the drawings and would attempt to preserve the rock beyond these limits in the soundest possible condition.

Before beginning any blasting operations, ConnectGen will prepare a blasting plan. The blasting plan will include specific detailed information on all procedures, materials, and equipment to be used, in accordance with applicable regulations. The blasting plan will describe procedures and precautions to be taken with regard to the worker and public safety and protection of existing structures. The plan will describe specific drilling, blasting, mucking, and hauling operations. All blasting would be performed in accordance with the approved blasting plan.

If blasting is required, controlled blasting techniques such as pre-splitting or line drilling would likely be used. Pre-blast surveys and blast monitoring may be required for blasting within 500 feet of any existing structures. Additional monitoring may also be required for blasting near identified springs or other environmentally sensitive areas.

2.3.4 Road Base Construction

Based on preliminary design, road base (aggregate) would be placed on graded areas in six-inch to 12-inch (maximum) deep compacted layers, to the desired finished grade. The depth of each compacted layer will be based on the detail design and ConnectGen's construction contractor's ability to achieve the required compaction. The use of a geotextile is not anticipated at this time. If the engineers determine that it is needed, it will be installed prior to laying down any road base material.

To the extent possible, aggregate will be made from crushing the rock excavated from the turbine foundation locations, eliminating the need to bring in aggregate from offsite. However, some roads would need to be built before any foundations are excavated, so some aggregate will likely be imported from a nearby source. The construction contractor will determine where the aggregate is sourced from.

2.3.5 Excavation

Excavation involves the removal of earth to allow for the construction of roads and foundations. Excavation for structures will be completed to the specifications indicated on the detail design drawings and confirmed during micrositing. Adaptive design and planning will be used to avoid excavations in environmentally sensitive features or wildlife areas. Machine excavation will be controlled to prevent undercutting the determined subgrade elevations. Excavated materials that meet the specified requirements may be used for fill, embankments, and backfill. Vertical faces of excavations will likely not be undercut to provide for extended footings.

Material excavated below the bottom of concrete structures to be supported on the subgrade will be replaced with concrete placed monolithically with the concrete above. Rock fill or lean concrete may be used, if acceptable to the design engineer.

Depending on the foundation design, of which there may be several, much of the excavated materials can be put back into the foundation excavations. Excess rock material will be crushed and used as road aggregate as appropriate. Remaining excess excavated materials will be disposed of in the Project Area

in coordination with host landowners and would not be taken offsite for disposal unless necessary. If excess materials are spread onsite, it will be done in a manner that will minimize impacts to environmental sensitivities on the site (e.g. wetlands or waterbodies).

2.3.6 Compaction

During construction of roads and foundations, the earth under and around these civil structures must be properly compacted to assure that the earthen foundations for the facilities are solid. Compaction associated with the Project will meet the following standards; rock fill will likely be compacted in eight-inch uncompacted thickness to 70 percent relative density as determined by American Society for Testing and Materials (ASTM) D4253 and D4254.

2.3.7 Trenching

ConnectGen plans to use open trenching and in some circumstances directional drilling, to install the electrical collection system cables and fiber optic lines. During open trenching, the extent of trench open at any given time will be limited to those distances necessary to expedite work. Trenches that are not backfilled by the end of the day will be covered or fenced. Covers will be secured in place and will be sufficient to keep livestock and wildlife from falling into the trench or hole. In areas where trenching will take place in waterbodies, best management practices will be developed and implemented to minimize impacts to water quality, sensitive habitat, and sensitive species, and any required permits will be obtained. Waterbodies will be restored to their preexisting contours and riparian areas will be allowed to revegetate.

2.3.8 Stormwater Pollution Prevention

There are several perennial and intermittent streams present in the Project Area. In order to protect water resources, ConnectGen will prepare a Project-specific Stormwater Pollution Prevention Plan (SWPPP), which will include erosion control measures to be used across the Project Area. The SWPPP will be prepared per the U.S. Environmental Protection Agency (EPA) document entitled "Storm Water Management for Construction Activities-Developing Pollution Prevention Plans and Best Management Practices," and in conformance with local and state permit requirements.

Given the dry and windy nature of the area, dust control measures will be proposed as part of the SWPPP to protect water quality, minimize impacts to residents, and minimize impacts to vehicles traveling along local roads. Examples of best management practices that can be included in the SWPPP are the use of water or other dust control measures on or near heavily used public roads, holding onsite traffic speeds to appropriate levels to minimize dust generation, using rock to cover disturbed soil, and revegetating or otherwise covering soils as soon as possible following soil disturbance.

2.4 Structural Construction Activities

2.4.1 Concrete Supply

ConnectGen may bring all concrete from a nearby concrete batch plant near Laramie, Wyoming, which would result in increased truck trips to the site during construction. However, the amount of concrete

needed for many of the Project components makes this a challenging undertaking. Consequently, the need for an onsite temporary concrete batch plant located in the Project Area offers a more efficient and cost-effective alternative.

A significant amount of concrete would be needed for construction of the wind turbine foundations, substation foundations, and operation and maintenance building foundation, an onsite batch plant could be used to supply the required concrete. An onsite batch plant would be in one of the proposed laydown areas. The plant would have the capacity to produce 1,500 yards of concrete daily. The plant would include a generator, a cement storage facility, sand, aggregate, and water storage. The batch plant would occupy approximately two to three acres of the laydown area and use approximately 30,000 gallons of water daily during peak production of concrete

2.4.2 Steel Placement

The construction of the turbine foundations will require a large volume of steel reinforcement rebar that will need to be stored onsite in the laydown yards. ConnectGen assumes that some level of prefabrication will occur offsite prior to delivery to the Project Area.

2.4.3 Formwork

The construction of turbine foundations may require formwork. Formwork is usually timber or steel used to form the foundation shape into which rebar is placed and then concrete is poured. The formwork is removed when the concrete has cured. Steel formwork will be reused. However, if timber formwork is used, it may need to be disposed of after several uses. ConnectGen would apply appropriate disposal methods to discard this material when it is no longer useable.

2.5 Electrical Construction Activities

2.5.1 Buried Cable Placement

ConnectGen will likely use two methods for the placement of the electrical collection system cable. These include open trenching and horizontal directional drilling. Open trenching uses a trenching machine or trackhoe to open the trench so the cable can be placed at the proper depth. Depending on the results of the geotechnical study, offsite fill material may be required if the local soil does not provide for acceptable heat transference. The offsite material would be placed around the cable to facilitate heat transfer, and then native soil would be used to backfill the trench. As discussed in Section 2.1.2, excess materials excavated from trenches that are not put back into the trenches will likely either be used for road aggregate or spread across the site.

The electrical collection system cable will be buried at least 3 feet below the ground surface, with fiber optic cables placed shallower, at a minimum of 18 inches. The final depths would be determined by the geotechnical conditions of the Project Area, and the method used to install the cable.

ConnectGen may elect to use horizontal directional drilling for cable installation under streams or other waterbodies in the Project Area to reduce potential impacts to waters and wetlands and to minimize impacts to other sensitive habitats.

2.5.2 Grounding

When the turbine foundation is constructed it will include a grounding mat that surrounds the foundation and is connected to the foundation. The grounding mat is typically made of a bare copper cable mat that helps discharge electricity into the earth should the turbine build up an electrical charge from a lightning strike or equipment malfunction. The Project substations will also have a grounding grid laid in trenches below the ground surface around each substation site to protect equipment and personnel in the case of electrical malfunction or lightning strike.

Transmission poles also typically require grounding. During construction of the gen tie line, a grounding crew will follow behind the pole assembly and erection crew to install the structure grounding rods. This crew would install the proper number of ground rods based upon resistance measurements they take at each pole location.

2.5.3 Buswork And Electrical Line Connections

The Project will require some overhead electrical line and buswork (i.e., rigid overhead metal conductors) connections to be made at the Project substations. The electrical collection system would likely come into each Project substation underground, then transition overhead into the buswork. The buswork connects the turbine collector lines on different feeder lines to a common bus. Any necessary voltage regulation devices would also connect to this buswork, which then connects to the low-voltage side of the substation transformer. On the high-voltage side of the transformer, an overhead connection would be made to the Project's gen tie line using a riser. Electrical equipment will be designed in accordance with Avian Power Line Interaction guidance to avoid and minimize potential impacts to avian species.

Small overhead cranes, scissor lifts and other equipment will be used to construct the buswork as appropriate. These components would be bolted together onsite and placed on foundations for each component. The Project substations will be fenced.

2.5.4 Communications Systems Installation

Communication between the wind turbines and the Project substations will use underground fiber optic cables or similar material. In most cases, these cables will be buried above or adjacent to the electrical collection system cables using the same trenches and minimizing the impact to the environment. There will also be a communication line that goes to the O&M building.

2.5.5 Aviation Lighting on Wind Turbines

The Federal Aviation Administration (FAA) regulations require aircraft warning markings on all structures taller than 200 feet. The two wind turbine designs being considered for this Project are taller than 200 feet, so lighted marking is required. Once the Project layout is finalized, ConnectGen will prepare a Project lighting plan using the guidance from FAA Advisory Circular AC No. 70/7460-1L, 2018. Typical aspects of aviation warning for a wind energy project include flashing red lights placed on the nacelles of the turbines. Depending on the height of the turbines, some or all turbines will require a light. All turbines greater than 500 feet in height will required to be lit. Once the final turbine type is selected a detailed marking plan will be developed in coordination with the FAA.

2.6 Wind Turbine / Met Tower Erection

2.6.1 Turbine Component Delivery and Storage

The delivery route for Project components will be dependent on the location of the turbine manufacturer. The Project components may be delivered via trucking along Interstate 80 and/or U.S. Highway 287, or may be shipped by railroad to Laramie, Wyoming and transferred to trucks for delivery to the Project.

As the wind turbine components arrive at the Project Area, they will typically be routed to the turbine pad where they are to be installed. When trucks arrive at each location, a crane will remove the turbine components from the truck. Each turbine pad will have a plan for the arrangement of major components before erection can begin. These components include tower sections, nacelle, rotor hub, and blades. Ideally, the wind turbine foundation will be ready so that the lowest tower section can be offloaded and set directly onto the foundation.

While most of the major components will arrive assembled, the rotor (consisting of the hub and blades) will be assembled onsite. Typically, the rotor would be placed with the nose up, and a crane would be used to lift blades so they can be attached to the rotor. Once these blades are attached, and any hydraulic or electrical connections are made between the hub and blades, the completed rotor package will be ready to be lifted into place.

2.6.2 Crane Movement or Assembly

When a large crane first arrives in the Project Area, it will be set up near the location of its first turbine installation and assembled there. Once the turbine at a site is erected, the crane would be left assembled and “walked” to the next turbine site in the string. The requirements for walking the cranes would set many of the design requirements for the turbine access road design, including road width and grade. In instances where the crane cannot be walked to the next turbine pad, it will be disassembled and moved to the next site, where it will be reassembled. ConnectGen may elect to use several cranes to erect turbines concurrently.

2.6.3 Wind Turbine Component Lifts

Wind turbines are installed in large, pre-assembled components that are pieced together in the field. The tower usually consists of three or four sections and is installed first. The tower sections are lifted one at a time and bolted together in place. Once the last tower section is in place, the nacelle is secured to the top of the tower. Finally, the rotor (hub and blades) is lifted into place and secured to the nacelle. While typically the rotor can be lifted into position as a complete unit, in some instances the hub is fitted onto the nacelle, and then the blades are lifted into position and fixed to the hub. The rotor lift requires the use of a helper crane.

Lifting and assembling large turbine components can only be done with good visibility and low winds. Typically, once the crane and all wind turbine components have arrived at a site, the assembly of the major components takes only a few days per turbine. ConnectGen may choose to have two or more large cranes simultaneously installing turbines.

2.6.4 Met Tower Installation

The met towers will arrive on site as individual structural components. The structural components will be assembled on the ground into tower sections and the tower sections will be lifted into place on the tower foundations using a crane. Alternatively, the individual structural members could be erected on the foundations, with the entire assembly being built member by member in the air.

3.0 Operation & Maintenance

3.1 Operation Activities

The following sections describe the activities required to operate and maintain the Project.

3.1.1 Project Administration

Project administration includes the business aspects of running a utility scale wind farm. Such activities include staffing the Project, training staff, scheduling and facilitating maintenance, monitoring the performance of the Project, and preparing necessary documentation that is required by local, state and federal agencies. Several of these activities are discussed in more detail below.

The O&M facility will be staffed during normal business hours, and staff will include a supervisor and approximately 20 Project maintenance staff.

3.1.2 Orientation and Training

ConnectGen will develop site-specific training materials that all employees on the Project will complete. It is assumed that ConnectGen will employ experienced operators and maintenance staff per specific job requirements. Training materials may address safe work procedures on wind turbines and the specific tasks necessary to provide scheduled and unscheduled wind turbine maintenance. In addition, all site personnel will be trained on the environmental management and monitoring requirements of the Project.

ConnectGen will also develop a safety orientation program that site visitors must complete prior to going out on the Project. This orientation will address those aspects of environmental management they may impact during their onsite activities. Topics may include general site procedures for:

- Avoidance of wildlife
- Threatened and endangered species identification and avoidance
- Cultural resources and fossil protection and reporting
- Requirements for control of livestock
- Noxious weed control
- Excessive dust avoidance
- Noise requirements
- Motorized access limited to site access roads
- Hunting awareness
- Worker health and safety
- Other procedures as appropriate for their onsite activities

3.1.3 Wind Farm Performance Monitoring

Wind turbines generally operate automatically without the need for centralized plant operators. The role of the site manager and staff will be to monitor the performance of the turbines, but initiate manual control only as needed for maintenance and troubleshooting.

Site management will analyze the performance trends of the wind turbines and associated facilities to evaluate the overall efficiency of Project operations. This analysis will use data collected from the wind turbines and the permanent met towers. It is possible some scheduled maintenance activities would be added or adjusted to improve the performance of the Project based on the results of these analyses.

At times, wind turbines may need to draw power from the WAPA transmission line and/or local utility company in order to optimize the direction of the nacelle. Supporting infrastructure would be necessary to ensure that each turbine can both generate and draw power from either the WAPA transmission line or local utility distribution lines.

3.2 Maintenance Activities

As with any machinery, regularly scheduled preventive maintenance would help to ensure the safe and efficient long-term operation of the wind turbines. ConnectGen will develop the Project's Operation and Maintenance Plan that will describe the scheduled minor and major maintenance activities and inspection requirements anticipated during the calendar year.

Staff periodically will analyze meteorological data and performance trends for the wind turbines and associated facilities to determine the overall efficiency of the operation. It is possible some scheduled maintenance activities would be added or adjusted to improve the performance of the operation. Staff will have specific training regarding safe work on wind turbines, and the specific tasks necessary to provide both scheduled and unscheduled wind turbine maintenance.

Road maintenance will be performed on an as-needed basis. Regular snow removal will occur during the winter months to maintain access to the wind turbines, substation, and operation and maintenance building. Care will be taken in siting the operation and maintenance building to avoid contributing to snow drifting on Boulder Ridge Road. Grading and blading will be performed as required in the spring to remove vehicle ruts. Similar surface work may be needed after heavy rainfall or unusually heavy maintenance traffic. Culverts, drains, and other water management features will be kept clear to allow for natural water flows.

There may be times during the year when portions of the Project site could not easily be accessed due to high winds, or heavy rain or snow storms. A Health, Safety, Security, and Environment (HSSE) Plan will be developed for the Project to guide staff's activities during these weather conditions.

3.2.1 Project Drive-By Inspections

Staff will drive the Project site frequently to conduct a visual inspection of the operation, including wind turbines, road conditions, fencing, other infrastructure, and any incidences of waste disposal or

vandalism. The purpose of the inspections will be to identify obvious problems requiring maintenance or attention. Visual inspections are a redundant check on the wind turbines. Each wind turbine will have internal sensors to monitor its operating condition. Wind turbines requiring maintenance will be stopped remotely to allow the condition to be fixed.

3.2.2 Scheduled Wind Turbine Maintenance

Individual project components, including the Project substations, will be inspected on a daily, weekly, monthly, or annual basis, as required by that equipment. The schedule will be part of the Operation and Maintenance Plan. Inspection results would be logged and used to plan future maintenance activities. Minor oil leaks, for example, will be promptly addressed to prevent a developing problem. Wind turbine maintenance events will be scheduled based on the manufacturer's specifications. They likely would be planned for the spring and summer each year. Blade washing when required, will be conducted by a contractor who will supply the necessary water. Maintenance of the substation's transformers, switchgear, and buswork likely will require that the substation be de-energized. Most scheduled substation maintenance activities could be performed during a single day each year.

3.2.3 Unscheduled Wind Turbine Maintenance

Unscheduled repair work may be either minor or major. Replacing faulty internal components on the wind turbines, for example, will be considered a minor repair done with small tools and the wind turbine's integrated winch system. Only a pickup or small truck will be need to access the wind turbine using the existing Project access roads. Similarly, minor repairs are listed below:

- Replacing wind turbine sensors
- Replacing small motors (e.g., for the yaw drive or fans)
- Replacing small pumps (e.g., for the hydraulic system or cooling system)
- Replacing gear oil
- Replacing coolant
- Replacing hydraulic fluid
- Replacing seals (e.g., on generators or gearboxes)

Major repairs are far less common and may require a crane and heavy trucks. If the crane pad used during construction was no longer available, a pad consisting of aggregate will be installed. The repair activity will be planned to minimize the crane's time on-site and the overall effects of the repair. Major repairs are listed below:

- Replacing wind turbine blades
- Replacing a wind turbine generator
- Replacing a wind turbine gearbox
- Replacing a wind turbine transformer

The need to replace an entire wind turbine prior to decommissioning is extremely unlikely. If a wind turbine tower or foundation failed, replacement of the wind turbine would require that the wind turbine be removed in the reverse order in which it was installed. Components not used for the replacement wind

turbine would be loaded onto trucks and removed from the site. The new wind turbine would be installed using the appropriate combination of original and replacement parts with the construction methods described previously.

4.0 Decommissioning

ConnectGen estimates the Project will have an estimated 35-year life based on the useful life of the wind turbines. After that time, ConnectGen will evaluate the continued operation of the Project and either upgrade and re-power the facility with renegotiated leases or decommission it.

If the Project was decommissioned, the goal of decommissioning would be to remove the power generation equipment and return the site to a condition as close to its pre-construction state as possible. Major activities required for decommissioning would typically occur in reverse order to construction and are listed below:

- Wind turbine, wind turbine foundation, and meteorological tower removal down to depth of at least 36 inches below grade. Concrete and steel would be hauled off site and recycled as appropriate. Foundations would be filled with native weed-free aggregate and soils.
- Electrical collection system removal for above-ground structures and decommissioning in place for below-ground cables. Raw material costs could facilitate removal of below ground cables.
- Substation and switchyard removal. Fencing and fence posts would be removed. Non-native aggregate would be removed. Native aggregate would be scattered on site.
- Sale or demolition of the O&M building. The on-site septic system would be abandoned consistent with state and local requirements, unless needed for a future use of the site.
- Transmission line removal down to 36 inches below grade. Foundation holes would be filled with native weed-free soil.
- Road removal (as required by permit and/or site control agreements by landowners). Road disturbances would be re-graded to original contours where cut and fill made recontouring feasible. Any roads left in place would become the responsibility of the landowner.
- Grading.
- Revegetation and revegetation monitoring to ensure establishment of vegetation.

The specific requirements and approach for each activity are estimates, since the technologies and construction techniques available when the Project is decommissioned are expected to have changed from their current state.

4.1 Wind Turbine / Met Tower Removal

The decommissioning activity most notable to the general public will likely be the removal of the wind turbines and met towers. The disassembly and removal of this equipment would essentially be the same as their installation, but in reverse order.

4.1.1 Crane Movement and Assembly

When a large crane first arrives onto the Project site, it will be taken to the location for its first turbine removal. The crane will be assembled on that site, and then used to disassemble the wind turbine. Once the turbine at that site is disassembled, the crane will be walked to the next turbine site. If the requirements for walking the cranes cannot be met with the Project's roads, road improvements may be required. At locations where the road cannot be improved to within the tolerances for walking the crane, the crane will be disassembled, moved to the next site, and reassembled.

If the crane pads built for the construction of the Project were subsequently removed, or no longer meet the requirements for the crane, then crane pads will need to be installed or improved.

4.1.2 Wind Turbine / Met Tower Disassembly

The large components that make up a wind turbine will be disassembled in the reverse order they were assembled. The rotor (hub and blades) are removed from the nacelle and, with the help of a smaller crane, turned horizontally and set on the ground. Once the turbine rotor has been removed, a crew and small crane will disassemble it into the hub and three loose turbine blades. Next, the nacelle will be removed from the top of the tower, followed by each portion of the tower. The met tower will similarly be disassembled by a crane, starting with the upper tower sections and moving downward. The met tower sections will be disassembled on the ground into individual structural members for removal from the site. The met tower foundations will be removed to below grade as required in the lease agreements with the land owners.

4.1.3 Component Removal

The most efficient manner for component removal will be for each large component (other than the rotor) to be placed directly onto a truck's bed when it is removed from the turbine. These trucks could then immediately take the component off the site. This approach will limit the need for clearing an area around the turbine base to just enough area to set down the rotor.

When the rotor is disassembled, the blades will be placed into a carrying frame. The blades in the frame can then be loaded onto a truck for removal from the site. The hub can also be removed once it is disassembled from the blades.

4.2 Electrical System Removal

4.2.1 Buried Cable Removal

Between each of the turbine locations, there will be a buried electrical cable and fiber optic cable. ConnectGen will discuss with WAPA and landowners whether to remove these cables or leave them in place at the time of decommissioning. Removing the cables will cause some environmental impact that may need to be mitigated but leaving them in place could impact future uses of the site.

If the cables are to be removed, a trench will be opened, and the cables pulled out. The cables will be cut into manageable sections and removed from the site. The trenches will then be filled with native soil and compacted. The disturbed area will be revegetated with native plants, or landowner-approved seed mixtures.

4.2.2 Substation Disassembly and Equipment Removal

Once the Project and transmission line is decommissioned, the substations will likely be disassembled. Major components will be removed from their foundations and placed onto trucks using a crane. The steel structures and control buildings will be disassembled and removed from the site. The fence will be taken down, and fence posts removed. The gravel placed in the substation yards will be removed if it was not native rock. Native rock would be scattered onsite.

ConnectGen will discuss with WAPA and the landowner whether the substation foundation and grounding grid will be removed or left in place.

4.2.3 Transmission Line Removal

Assuming the transmission line no longer serves a purpose for the site, it will be disassembled and removed. Initially, the wires will be removed from the tower hangers and collected for recycling. The tower structures will then be disassembled and removed, including grounding rods to six inches below grade. The areas around the poles, along with any access roads that were necessary, will be removed if it was not native rock. Native rock would be scattered and spread onsite.

4.3 Operations and Maintenance Building Removal

The O&M building will either need to be demolished and removed or sold. All equipment and furniture within the building if demolished will likely be removed. All debris from the demolition will likely be removed from the Project site. Any installed septic system will also be abandoned in a manner consistent with State and local health regulations unless retained by any new owner of the O&M building.

4.4 Structural Foundation Removal

When the wind turbines, met towers, and substation components are removed from their foundations, the foundations need to be removed per the requirements of the lease agreement. The concrete and steel in the foundations will be broken-up and removed to a depth of at least 36 inches below grade. All concrete and steel debris will be removed from the site.

4.5 Civil Decommissioning Activities

4.5.1 Road Removal

The landowners will have the choice when the Project is decommissioned as to whether the Project access roads are to be removed. If the roads are left, maintenance of the roads will become the responsibility of the landowner.

Once all the necessary equipment and materials have been removed from an area and the road to that area is no longer needed, it can be removed. The road surface and bed materials will be removed down to grade. Any materials native to the Project area will be scattered across the site, and foreign materials removed.

4.5.2 Re-Grading and Re-Vegetation

For areas where equipment or materials are removed, those areas will be re-graded back to pre-construction contours, to the extent possible. Holes where foundations have been removed to 36 inches below grade will be refilled with native soils. Removed roads will be re-graded to original contours if cuts and fills make such re-grading practical. Crane pads will also be re-graded.

All areas of disturbed ground will be re-vegetated using native seed mixtures or those approved by the landowner.

5.0 Environmental Protection Measures

ConnectGen will plan, coordinate, and conduct each of the Project phases in a manner that protects the quality of the environment. ConnectGen will comply with applicable federal, state, and local laws, regulations, permits, and ordinances related to environmental protection.

5.1 Project Plans

ConnectGen will develop and implement the following environmental-related plans to avoid or minimize adverse effects to environmental resources from construction, operations and maintenance, and decommissioning:

- **Transportation and Traffic Management Plan.** This plan will describe measures designed to avoid or minimize adverse effects to the existing transportation system.
- **Blasting Plan.** This plan will describe measures designed to minimize adverse effects due to blasting.
- **Weed Management Plan.** This plan will describe the practices to manage noxious weeds during construction and operations activities.
- **Reclamation Plan.** This plan will describe post-construction activities to reclaim disturbed areas.
- **Lighting Plan.** This plan will follow the guidance from FAA Advisory Circular AC No. 70/7460-1L, 2018 to identify required aviation warning lights for nacelles.
- **Spill Prevention, Control and Countermeasures (SPCC) Plan.** This plan will describe the measures designed to prevent, control, and clean up spills of hazardous materials.
- **Storm Water Pollution Prevention Plan (SWPPP).** This plan, consistent with federal and state regulations, will describe the practices, measures, and monitoring programs to control sedimentation, erosion, and runoff from disturbed areas.
- **Bird and Bat Conservation Strategy (BBCS).** This plan will describe a program of specific and comprehensive actions that, when implemented, reduce risk of avian and bat mortality.
- **Health, Safety, Security, and Environment (HSSE) Plan.** This plan will describe measures designed to avoid and/or minimize adverse effects associated with breaches in Project security during

construction including terrorism, sabotage, vandalism, and theft. The plan will include provisions describing how the Project construction team will coordinate with state and local law enforcement agencies during construction to improve Project security and facilitate security incident response, if required. In addition, the plan will guide staff activities during adverse weather conditions, including high winds, heavy rain, or snow storms.

- **Fugitive Dust Plan:** This Plan, to be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f), will describe the measures to minimize fugitive dust emissions.
- **Erosion Control Plan:** This plan will identify areas of potentially higher erodibility due to excavation, grading or ground disturbance, and will define appropriate erosion control measures that may be implemented during or after construction.
- **Unanticipated Discoveries Plan:** This plan will describe procedures for responding to the discovery of archaeological, cultural resources or paleontological resources during construction.

5.2 Measures

ConnectGen will develop and implement Environmental Protection Measures (EPMs) to avoid or minimize adverse effects to environmental resources from construction, operations and maintenance, and decommissioning of the Project. ConnectGen will designate certain areas as “environmentally sensitive” and take actions to avoid or minimize effects on these areas. Environmentally sensitive areas may include, for example, wetlands, certain water bodies, cultural resources, or wildlife habitat.

ConnectGen will implement the EPMs listed in Table 5-1 during the Project phases (construction, operations and maintenance, and decommissioning) as noted in the table. EPMs are an integral part of the Project. Project activities described in this Project Description document would incorporate and be subject to the EPMs and requirements imposed as part of federal, state, or local permits and authorizations.

TABLE 5-1: Environmental Protection Measures

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
General					
GEN-1	The Project will be designed, constructed, and operated in compliance with Albany County Zoning Resolution (as amended; Albany County 2015) and Albany County Wind Energy Siting Regulations. Construction and operations activities will comply with all Federal, State, and county environmental regulations, as applicable.	X	X	X	X
GEN-2	The Project will delineate environmentally sensitive areas (e.g. wetlands, waters, habitats) located within or adjacent to the Project Area and seek to avoid or minimize impacts to these areas during design and final siting. Environmentally sensitive areas will be identified in construction planning documents. Construction and operations personnel will be informed of the appropriate practices that may be applicable to avoid or minimize impacts when working in the vicinity of these areas.	X	X	X	X
GEN-3	Construction travel will be restricted to existing roads and permanent or temporary access roads identified in the final Project Site Plan.		X		
GEN-4	The Project will implement speed limits on construction and permanent access roads to minimize potential for fugitive dust, impacts to wildlife, and for safety purposes. Speed limit signs will be posted as appropriate.		X	X	X
GEN-5	Construction and operations equipment will be inspected periodically per the manufacturer's specifications and maintained in good working condition.		X	X	X
GEN-6	Fences, gates and other access controls (e.g. cattle guards) will be maintained in good working order during construction and operation activities. Damaged access controls will be repaired or replaced as soon as possible. Security guards or access attendants may be employed during the construction phase if needed.		X	X	X
GEN-7	Routine operation and maintenance activities will be scheduled and performed during daylight hours.			X	
GEN-8	Temporary sanitary facilities will be located in convenient locations throughout the site. Facilities will be located greater than 100 feet from any waterbody or wetland and will be regularly serviced and maintained.		X		X
Air Quality					
AQ-1	A Fugitive Dust Control Plan will be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f).	X	X		X
AQ-2	All unpaved roads and disturbed areas where construction activities are occurring, including temporary laydown areas, will be treated with water or other surfactants as frequently as necessary to control fugitive dust. Wind erosion control techniques such as windbreaks, water, WY DEQ-approved chemical dust suppressants, and/or vegetation will be applied to soil disturbance areas that could potentially result in wind-blown soils.		X		X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
AQ-3	All construction equipment vehicle tires will be cleaned via track pad entrances as necessary to limit tracking of soil onto public roadways prior to leaving the construction site.		X		
AQ-4	All vehicles that are used to transport solid bulk material on public roadways and have the potential to cause visible dust emissions on public roadways either will be covered or the materials sufficiently wetted in a manner to minimize fugitive dust emissions.		X		X
AQ-5	Idling equipment will be turned off when not in use.		X	X	X
AQ-6	Any stationary sources associated with construction or operations activities requiring WDEQ-AQD permits or waivers will be controlled in accordance with relevant regulations and permit conditions.		X	X	X
Cultural Resources					
CR-1	An Unanticipated Discoveries Plan will be developed that describes procedures for responding to the discovery of archaeological or other cultural resources, including unmarked graves, during construction.	X	X		
CR-2	Conduct appropriate worker education concerning the recognition and protection of cultural resources for all on-site personnel.	X	X	X	X
CR-3	Conduct a new Class I records search for the Project and Class III cultural resources inventory for all work areas where ground disturbance may occur to comply with Section 106 of the NHPA. The Class III inventory should be performed subsequent to the Draft EIS and after the Project design is finalized. The survey results will be shared with the Wyoming SHPO to identify and avoid resources eligible for the National Historic Register.	X			
CR-4	To the extent practicable, construction activities will avoid impacts to cultural resource sites that may be identified within the Project Area. Cultural resource sites and appropriate buffers will be delineated on construction drawings as restricted areas and will be flagged in the field with signage and/or temporary fencing to prevent unauthorized entry.		X		X
CR-5	Conduct a systematic architectural inventory of the Project Area and use setbacks to reduce impacts to historic architectural resources to the extent practicable.	X			
Hazardous Materials					
HAZ-1	Prior to commencing construction, a Hazard Communication Program will be developed to comply with OSHA requirements under the Hazard Communication Standard. Elements of the Hazard Communication Program include a hazard determination process, approval process, materials inventory system, and training for site personnel. At a minimum, hazardous materials will be properly labeled and stored and material safety data sheets will be available at the site.	X	X	X	X
HAZ-2	Care will be taken when selecting the location of hazardous materials storage areas within the site to avoid potentially sensitive areas.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
HAZ-3	In compliance with the EPA's Spill Prevention, Control and Countermeasure Regulation, secondary containment for hazardous materials that are stored onsite will be provided to minimize potential effects to the surrounding environment. Examples of secondary containment are concrete bermed areas and manufactured containment pallets.		X	X	X
HAZ-4	Concrete washout would only be disposed of in properly designed concrete washout facilities.		X		
HAZ-5	A Spill Prevention Control and Countermeasure Plan (SPCC Plan) will be prepared per local, State and Federal regulations and will be on site during construction, operation, and maintenance that defines procedures for storage, clean up and disposal of petroleum-based products. The SPCC will identify the types of equipment and materials that will be maintained on-site to facilitate a cleanup in the event of a spill. Construction and operations personnel will be trained to recognize and respond to accidental releases or spills in compliance with the SPCC. Regularly scheduled training modules will be provided to ensure prevention and preparedness throughout the life of the Project.		X	X	X
HAZ-6	All refuse, wastes, or hazardous materials will be handled, processed, treated, stored, and properly disposed of in accordance with Federal, State, and local regulations.		X	X	X
HAZ-7	Should previously unknown hazardous materials such as contaminated soils be encountered within the site during construction, operations and maintenance, or decommissioning, the materials will be characterized and the appropriate agency will be informed.		X	X	X
Public Health and Safety					
PHS-1	All site personnel, regardless of job responsibilities, will receive Project orientation including environmental and health and safety Project procedures, requirements and site rules.		X	X	X
PHS-2	Rail Tie will coordinate with local emergency services, including the Tie Siding Volunteer Fire Department personnel and Laramie Fire Department in development of response or evacuation plans and procedures. Rail Tie personnel will continue routine coordination with local emergency services throughout the life of the Project.	X	X	X	X
PHS-3	Fueling of vehicles will be conducted in accordance with procedures that will minimize the risk of fires and spills.		X	X	X
PHS-4	Selected Rail Tie personnel and construction crew leads will be trained in first aid, automated external defibrillator operation, and CPR. Adequate materials and resources for onsite treatment, first aid, and stabilization will be available onsite at all times.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
PHS-5	A Health, Safety, Security and Environment (HSSE) Plan will be prepared for worker protection, as required by OSHA, with emphasis on safety and health regulations for construction and operations and maintenance. All employees would be required to conform to safety procedures and to receive appropriate training for their job responsibilities. The HSSE Plan will include requirements for first aid and other emergency medical material to be stored on site and in maintenance vehicles.		X	X	
PHS-6	Construction equipment will be outfitted with OSHA-required safety devices. Hard hats, safety boots, ear and eye protective equipment, and other safety equipment will be used on the construction site.		X		
PHS-7	Wind turbines will be operated in conformance with the manufacturer's operational parameters.			X	
PHS-8	Staff will perform routine inspections of the Project facilities, including wind turbines, roads, fencing, and other infrastructure, and will identify any incidences of waste disposal, theft, or vandalism.			X	
PHS-9	Chain-link security fencing will be installed at the substation and switchyard, and at the outdoor storage area adjacent to the operations and maintenance building to prevent unauthorized entry.		X	X	
PHS-10	During construction, temporary plastic mesh fencing will be installed to protect public and worker safety near excavated wind turbine foundations, electrical collection system trenches, material laydown areas, or any other areas deemed hazardous. Open holes and trenches without fencing will be covered or fenced to deter wildlife and livestock from becoming trapped or injured.		X		
PHS-11	The general public will not be permitted access to the Project facilities. Most private property within the Project area is fenced off. If trespassers are identified on privately-owned land, they will be escorted off of the property. Some of the property that the Project will be constructed on is State-owned land that is open to the public. The Project will coordinate with the state land office to identify appropriate temporal or spatial access restrictions during construction and operation periods.		X	X	X
PHS-12	The Project will post any roads it constructs as being private roads only for use by authorized personnel in connection with Project operations.		X	X	X
PHS-13	An Emergency Response Plan will be prepared in coordination with Albany County emergency services to ensure that policies and procedures are consistent with those already established for the county.	X			
PHS-14	Wildfire Mitigation Measures will be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and will be incorporated in the Project's Emergency Response Plan.	X			
PHS-15	Onsite personnel will routinely inspect the wind Project facilities for fire hazards.			X	
PHS-16	Wind turbines will be outfitted with lightning protection systems that will reduce the chance of fires igniting from lightning strikes.		X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
PHS-17	The base of each turbine will be surrounded by a non-flammable, aggregate-based turbine pad. The turbine pad will be regularly inspected, maintained, and treated to prevent vegetative growth that could result in a fire hazard.			X	
PHS-18	All construction and maintenance vehicles will be equipped with fire extinguishers in the event of an equipment fire. Should an onsite fire occur, Project personnel will call 911 to alert the Laramie Fire Department and Tie Siding Volunteer Fire Department.		X	X	X
PHS-19	Fire suppression equipment, including a trailer-mounted tank of 500 gallons or more capacity with a gasoline powered pump, shall be maintained in the Project Area at all times during construction and operations.		X	X	X
Noise					
NOISE-1	Construction vehicles and equipment will be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).		X		X
NOISE-2	Construction and hauling equipment will be maintained adequately and equipped with appropriate mufflers.		X		X
NOISE-3	Blasting or hydraulic hammering will be limited to daylight hours.		X		X
Geology and Soils					
GEO-1	Temporary ground disturbance activities will be limited to the minimum amount necessary in order to safely construct project facilities.		X		
GEO-2	Ground disturbance activities in areas of highly erodible soils and steep slopes will be avoided to the extent practicable.		X		
GEO-3	Roads will be designed to follow existing contours and to avoid steep slopes that would require extensive cut-and-fill construction.	X			
GEO-4	Soils excavated from the turbine pads will be segregated into separate stockpiles for topsoil and subsoil. Subsoil will be used primarily as backfill while topsoil will be spread as the topmost layer of soil to support revegetation. Any unused soils or excavated rock will be removed from the site or disposed of in coordination with the landowner.		X		
GEO-5	An Erosion Control Plan (ECP) will be developed to identify areas of potentially higher erodibility due to excavation, grading, or ground disturbance. The ECP will define appropriate erosion control measures that may be implemented during and after construction.		X		
GEO-6	Erosion control measures will be periodically inspected, and as required after precipitation events. Erosion control measures will be repaired or replaced as necessary.		X	X	X
GEO-7	As soon as practicable following completion of ground disturbance activities, areas of temporary ground disturbance will be regraded and recontoured to blend with the natural terrain while maintaining existing drainage patterns.		X	X	X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
GEO-8	All private landowner's existing drainage and erosion control structures such as diversions, irrigation ditches and tile lines shall be avoided by the Project, or in the alternative, appropriate measures are to be taken to maintain the design and effectiveness of the existing structures. Any structures disturbed during construction shall be repaired to as close to original condition as possible, as soon as possible.		X		
Paleontological Resources					
PALEO-1	Prior to construction, a pedestrian survey will be conducted by a qualified professional paleontologist in areas of high potential for fossil occurrence where ground disturbance activities are proposed to occur.	X			
PALEO-2	A Paleontological Unanticipated Discoveries and Mitigation Plan will be prepared that outlines appropriate actions in the event of an unanticipated discovery of fossils, including sampling investigation and reporting, and if needed, museum storage coordination for any specimen or data recovered.	X	X		
PALEO-3	Construction personnel involved with earth-moving activities will be informed of the possibility of encountering fossils, how to recognize fossils, and proper notification procedures. This worker training will be prepared by a qualified paleontologist and will be presented to all construction personnel during orientation.	X	X		
PALEO-4	If fossils are discovered in an active construction area, work would be stopped at that location and the construction project manager would be immediately notified.		X		
Recreation					
REC-1	City officials in Laramie and Fort Collins and private campgrounds or mobile home park owners will be coordinated with to identify facilities that are available to construction workers in order to avoid displacement of public recreational use at private campgrounds.	X	X		
REC-2	Recreational activities, such as hunting, may be restricted temporarily during construction for the safety of workers and recreationists; however, following construction recreational activities may continue in conformance with the property lease agreements and/or land use regulations.		X	X	X
REC-3	To the extent practicable, construction and maintenance traffic will be limited to minimize disruption of normal land use and recreation activities.		X	X	X
Transportation					
TRANS-1	Rail Tie will coordinate with WYDOT and Albany County to implement a Transportation and Traffic Management Plan that minimizes risks and inconvenience to the public, while ensuring safe and efficient construction of the Project. The plan will focus on turbine component deliveries, traffic and circulation primarily within and in the vicinity of the Project area. It will be designed to minimize potential hazards from increased truck traffic and worker traffic and to minimize impacts to traffic flow in the vicinity of the Project.	X	X		

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
TRANS-2	To minimize conflicts between Project traffic and background traffic, deliveries of project components will be scheduled around local volume peaks to the extent feasible.		X		
TRANS-3	Road clearances may include temporarily blocking road intersections via construction cones and/or staffing blocked intersections with a traffic-control flagger to allow haul trucks sole access to the road while delivering Project components. If required, public road closures are not expected to exceed 15 minutes during each/any road closure event.		X		X
TRANS-4	The Project will coordinate with WY DOT to determine whether temporary speed limit reductions during construction are applicable where Project access points intersect with State Highway 287.	X	X		
TRANS-5	Construction deliveries would be coordinated to avoid major traffic-generating events in Laramie including on the University of Wyoming campus, to the extent practicable.		X		
TRANS-6	The Project would coordinate with local law enforcement, to manage traffic flows and monitor traffic speed during deliveries.		X		X
TRANS-7	All staging activities and parking of equipment and vehicles would occur within the Project Area and would not occur on maintained Albany County roads.		X		
TRANS-8	Equipment and material deliveries to the site would be performed by professional transportation companies familiar with the type of equipment, loads involved, and U.S. DOT, WYDOT, and Albany County regulations.		X		X
TRANS-9	Road signs would be erected to notify travelers and local residents that construction is occurring in the area and provide information regarding the timing and route for oversized vehicle movements and deliveries. The erection/placement of road signs and the Project construction activities would be performed in accordance with the Albany County Zoning Resolution (as amended; Albany County 2015) and coordinated with the Albany County Road and Bridge Department and WYDOT.		X		
Vegetation					
VEG-1	A Reclamation Plan will be prepared prior to the onset of construction that will guide the revegetation of disturbed areas during and following the construction process.	X	X		
VEG-2	Revegetation will be implemented for all areas temporarily disturbed by construction or decommissioning of the facility in conformance with landowner agreements and in compliance with State and/or Federal permitting requirements. Temporarily disturbed areas will be revegetated as soon as practicable, either through natural revegetation practices or through the use of reseeding. If reseeding is required, plant species native to the affected ecosystems will be utilized .		X		X

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
VEG-3	The Reclamation Plan will identify locally-approved, weed free, seed mixtures that prioritize plant species native to the ecosystems affected by site construction.	X	X		
VEG-4	The Project will develop and implement an Integrated Weed Management Plan that identifies appropriate controls to avoid, minimize, or treat the spread of noxious weeds directly resulting from construction, operations, and decommissioning.	X	X	X	X
VEG-5	The Project will perform a preconstruction survey of the project footprint to identify existing locations of noxious weeds. Any locations delineated will be identified in the Weed Management Plan, and appropriate controls will be applied to Project activities in these areas.	X			
VEG-6	Upon completion of construction, a post-construction weed inventory survey will be performed to validate the effectiveness of the weed management program and ensure that invasive weed levels have not exceeded preconstruction levels.		X	X	
VEG-7	The Project will coordinate with the weed management contractor and host landowners regarding specific treatment methods on their respective properties.	X			
VEG-8	Any herbicide use as part of vegetation management activities will follow label instructions and relevant Federal, State, and local laws.		X	X	X
Visual Resources					
VIS-1	Collection lines will be buried and co-located with access roads to the extent practicable.	X	X		
VIS-2	The operations and maintenance building will be designed with rural and agricultural architectural elements to minimize contrast with existing structures. The building will be painted with earth-tone colors identified in the Bureau of Land Management (BLM) Standard Environmental Colors palette or as required by Albany County to reduce visual contrasts from color.	X	X	X	
VIS-3	Outdoor facility lighting will be designed with light caps and/or directed downward to minimize offsite glare.	X	X	X	
VIS-4	Turbine components will be painted with a light, non-reflective white color in accordance with the Albany County Wind Siting Regulations (Albany County 2011).	X	X	X	
VIS-5	The Project will follow Federal Aviation Administration (FAA) Obstruction Marking and Lighting requirements as defined by Advisory Circular No 70/7460-1L and will coordinate with the FAA on the feasibility of Aircraft Detection Lighting System (ADLS) to reduce the potential impact of nighttime lighting.	X	X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
Water Quality					
WQ-1	The Project will identify, avoid, and/or minimize adverse effects to wetlands and waterbodies.	X	X	X	X
WQ-2	Woody vegetation in potentially disturbed wetlands will be cut at ground level to leave the root systems intact and encourage sprouting of the existing species following construction.		X		
WQ-3	Equipment operation in or directly adjacent to wetlands or waterbodies will be kept to the minimum necessary to safely perform the work. Prefabricated equipment matting will be used to avoid rutting, soil compaction, and other ground disturbance where temporary work areas occur in wetlands or waterbodies.		X		X
WQ-4	Wetland and aquatic resource boundaries will be clearly identified on all construction plans and will be posted with signs and flagging in the field.		X		X
WQ-5	Appropriate permits will be secured should any fill or dredge activities in wetlands or other waters of the United States (WOTUS) be required.	X	X	X	X
WQ-5	No parking or servicing of construction-related vehicles will occur within any wetland boundary.		X	X	X
WQ-6	Erosion control barriers and other measures, such as silt fencing, fiber logs, and/or hay bales will be placed immediately upgradient of wetlands and waterbodies to minimize sediment transport and deposition.		X		X
WQ-7	Access roads will be designed and constructed to minimize disruption of natural drainage patterns including perennial, intermittent, and ephemeral streams.	X	X		
WQ-8	A Stormwater Pollution Prevention Plan (SWPPP) outlining specific erosion control measures will be prepared, and its requirements will be implemented onsite for the proposed Project. The SWPPP will comply with USEPA and WYDEQ requirements.	X	X		
WQ-9	Construction activities shall be performed using methods that prevent entrance or accidental spillage of solid matter, contaminant debris, and other objectionable pollutants and wastes into flowing streams or dry watercourses, lakes, and underground water sources.		X		
WQ-10	Borrow pits, if required, shall be excavated so that the water will not collect and stand therein. Upon completion of construction, the sides of borrow pits will be brought to stable slopes, with slope intersections shaped to carry the natural contour of adjacent, undisturbed terrain into the pit or borrow area, giving a natural appearance.		X		
WQ-11	Waterbody crossings would incorporate WGFD design specifications and professional engineering standards, as applicable. Open-bottom culverts will be used where appropriate to avoid changing stream morphology or removing suitable fish habitat. In addition, such waterbody crossings and culverts would be constructed in a manner that prevents sediment erosion, deposition of sediment, and minimizes impacts to any environmentally sensitive areas.	X	X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
WQ-12	Excavated material or other construction materials will not be stockpiled or deposited on or near stream banks, pond shorelines, or other watercourse perimeters where they can be washed away by storm runoff or can, in any way, encroach upon the actual water body itself.		X		
WQ-13	Water quality BMPs would be implemented at waterbody crossings to minimize any unforeseen impacts to the Platte River System's watershed and associated vegetation communities.		X		X
WQ-14	If new groundwater wells are required for construction or operation, the Project will coordinate with the WY State Engineer's Office to ensure withdrawal volumes will not adversely affect supplies for other uses.	X	X	X	
Wildlife					
WL-1	Initial vegetation clearing would be performed during the non-breeding season for birds (September 1 through April 15) if feasible. If vegetation clearing cannot occur during the non-breeding season, surveys will be performed in breeding bird habitat to identify avian nesting activity within the Project Area. Nest sites would be avoided until determined to be inactive.	X	X		
WL-2	The Project will develop and implement a Bird and Bat Conservation Strategy to avoid and reduce potential impacts to non-listed bird and bat species that may result from the operations of the Project.	X	X	X	
WL-3	The Project will develop and implement eagle conservation practices and seek to avoid the unintentional take of eagles at wind energy facilities.	X	X	X	
WL-4	In consideration of the USFWS' Land Based Wind Energy Guidelines (2012), the Project will perform post-construction mortality surveys to calculate the fatality rate of birds and bats.			X	
WL-5	All trash and refuse will be disposed of in designated, covered waste receptacles and regularly removed from the site in order to avoid attracting scavengers.		X	X	X
WL-6	The overhead power to ground wire (OPGW) wires associated with the Project 345-kV gen-tie line will be marked with bird flight diverters consistent with methods suggested in the Avian Power Line Interaction Committee's Reducing Avian Collisions with Power Lines (2012).		X		
WL-7	If overhead collection lines are included in the Project's final design, the electric lines will be designed to incorporate appropriate spacing of energized parts to avoid or reduce the potential for electrocution risk to large birds, specifically raptors. The Project's design would consider the Avian Power Line Interaction Committee's Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 and Reducing Avian Collisions with Power Lines: The State of the Art in 2012.	X			
WL-8	The Project will notify the USFWS within 24 hours of federally listed species or eagle mortality documented on the Project site.		X	X	

Resource Category	Measure	Implementation			
		Preconstruction	Construction	Operations	Decommissioning
WL-9	The Project established a 1-mile spatial buffer around known, occupied eagle nests identified during the 2019 and 2020 raptor nest surveys. The area within the 1-mile buffers was excluded from the Project Siting Corridor, therefore wind turbine generators would be setback a minimum 1-mile from the identified eagle nests. If future nest surveys identify additional occupied eagle nests, the Project will coordinate with the USFWS to identify appropriate nest-specific avoidance or minimization measures.	X			
WL-10	To the extent practicable, herptile habitats for Species of Greatest Conservation Need, such as fallen trees, prairie dog colonies, and potential basking rocks, will be left intact.		X	X	X
WL-11	Construction activities will be avoided between Nov 15 – April 30 in areas of Mule Deer Crucial Winter Range ¹ .		X		X

¹ WGFD. 2020. Wyoming Game and Fish Open Data. Available online at: <https://wyoming-wgfd.opendata.arcgis.com/>. Accessed December 2019 and February 2021.

6.0 References

Albany County. 2015. Albany County Zoning Resolution, Adopted: August 1, 1997; General Update Adopted July 21, 2015. Multiple Amendments from 2015 through 2019. Accessed on January 21, 2021. <https://www.co.albany.wy.us/263/Regulations-Zoning-Map>.

American Wind Energy Association (AWEA). 2018. U.S. Wind Energy Projects. Accessed on October 23, 2019. <http://www.awea.org/projects/projects.aspx?s=Wyoming>

Chapman, S.S., Bryce, S.A., Omernik, J.M., Despain, D.G., ZumBerge, J., and Conrad, M. 2004. Ecoregions of Wyoming (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,400,000).

Western Area Power Administration (WAPA). 2012. Draft Environmental Impact Statement. Hermosa West Wind Energy Project. DOE/EIS-0438. U.S. Department of Energy–Western Area Power Administration, ShellWind Energy. September 2012.

DRAFT

FIGURES

Figure 1: Project Area

Figure 2: Project Siting Corridors

Figure 3: Representative Project Layout (3 MW turbine)

Figure 4: Representative Project Layout (6 MW turbine)

DRAFT

Figure 1: Project Area

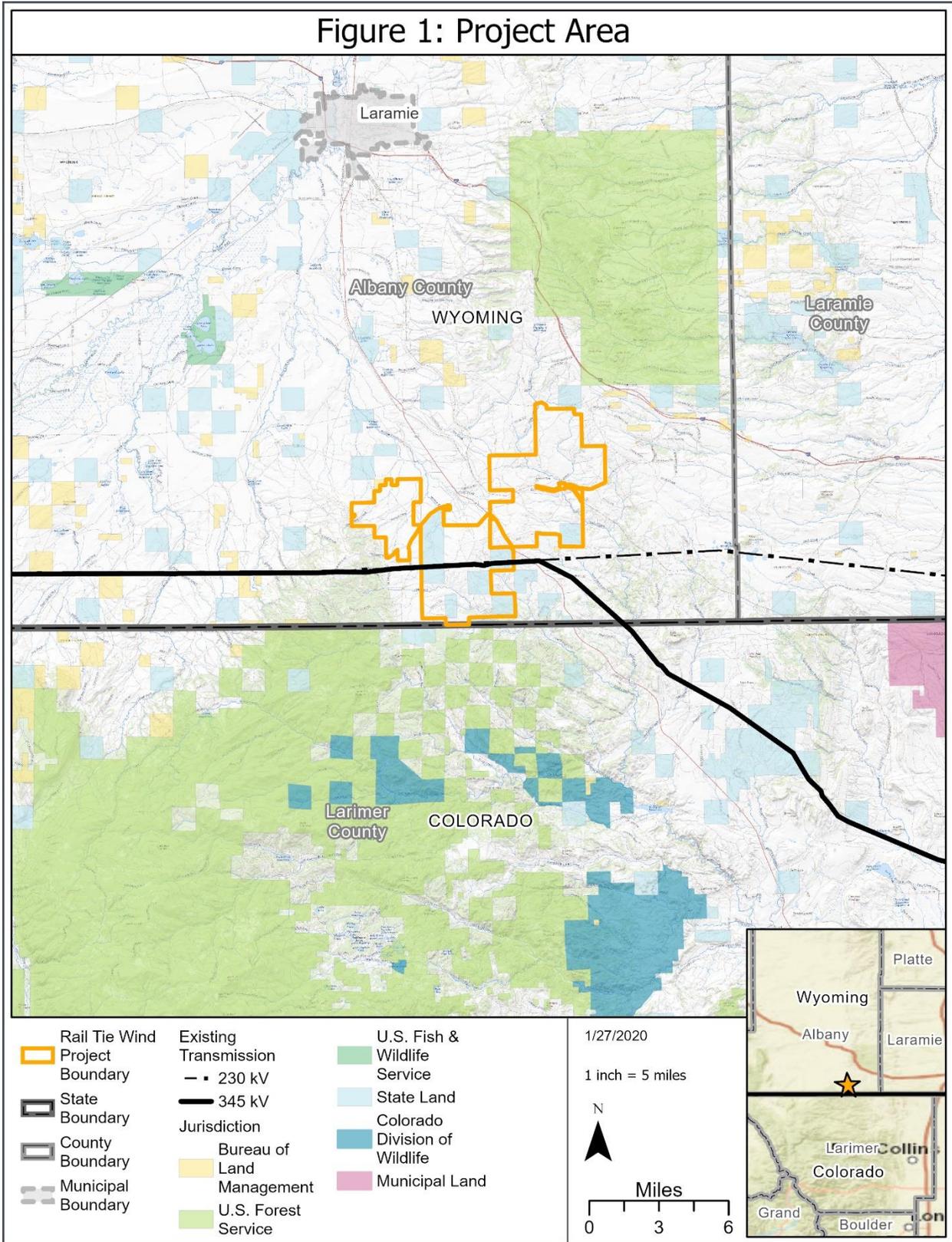


Figure 2: Project Siting Corridors

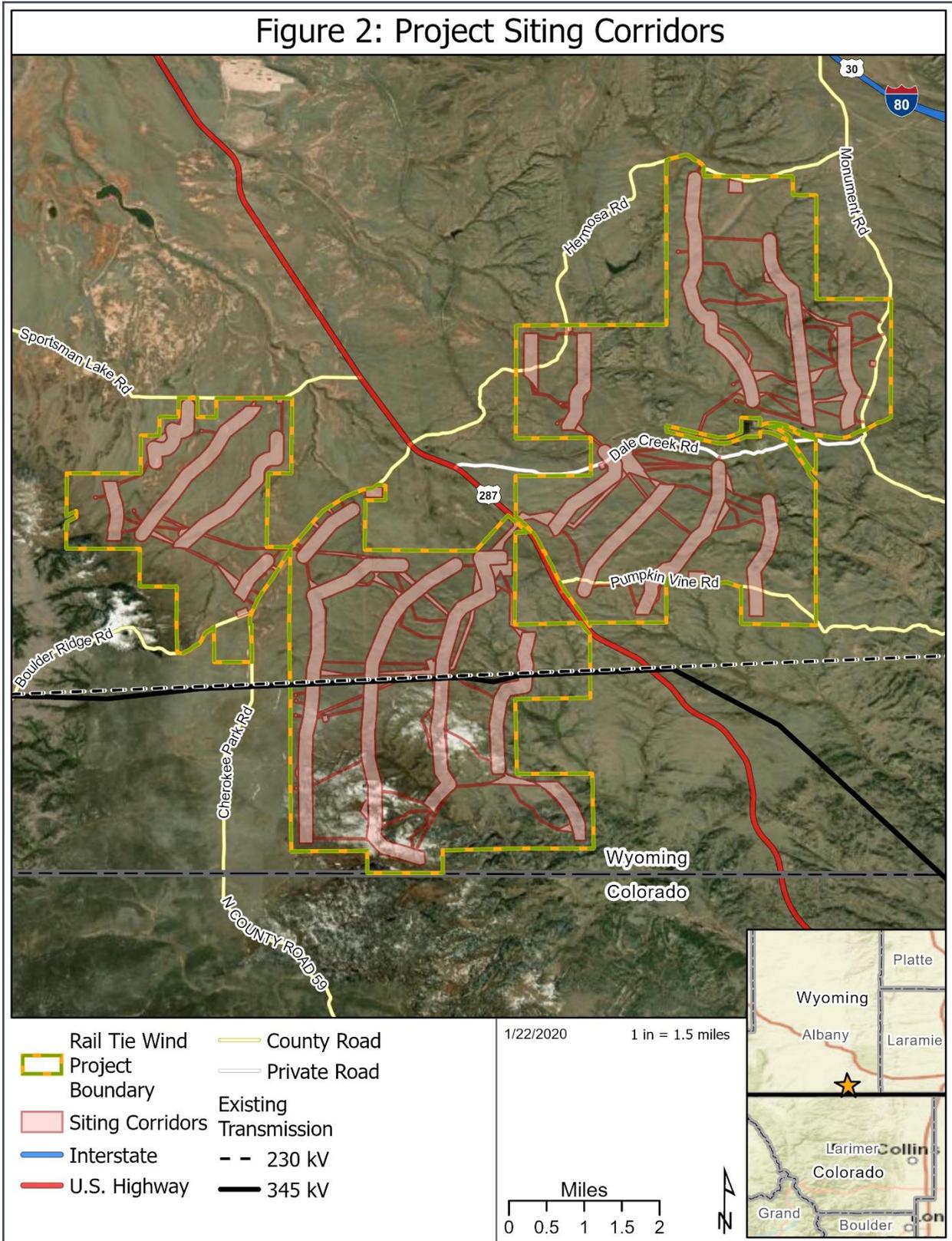
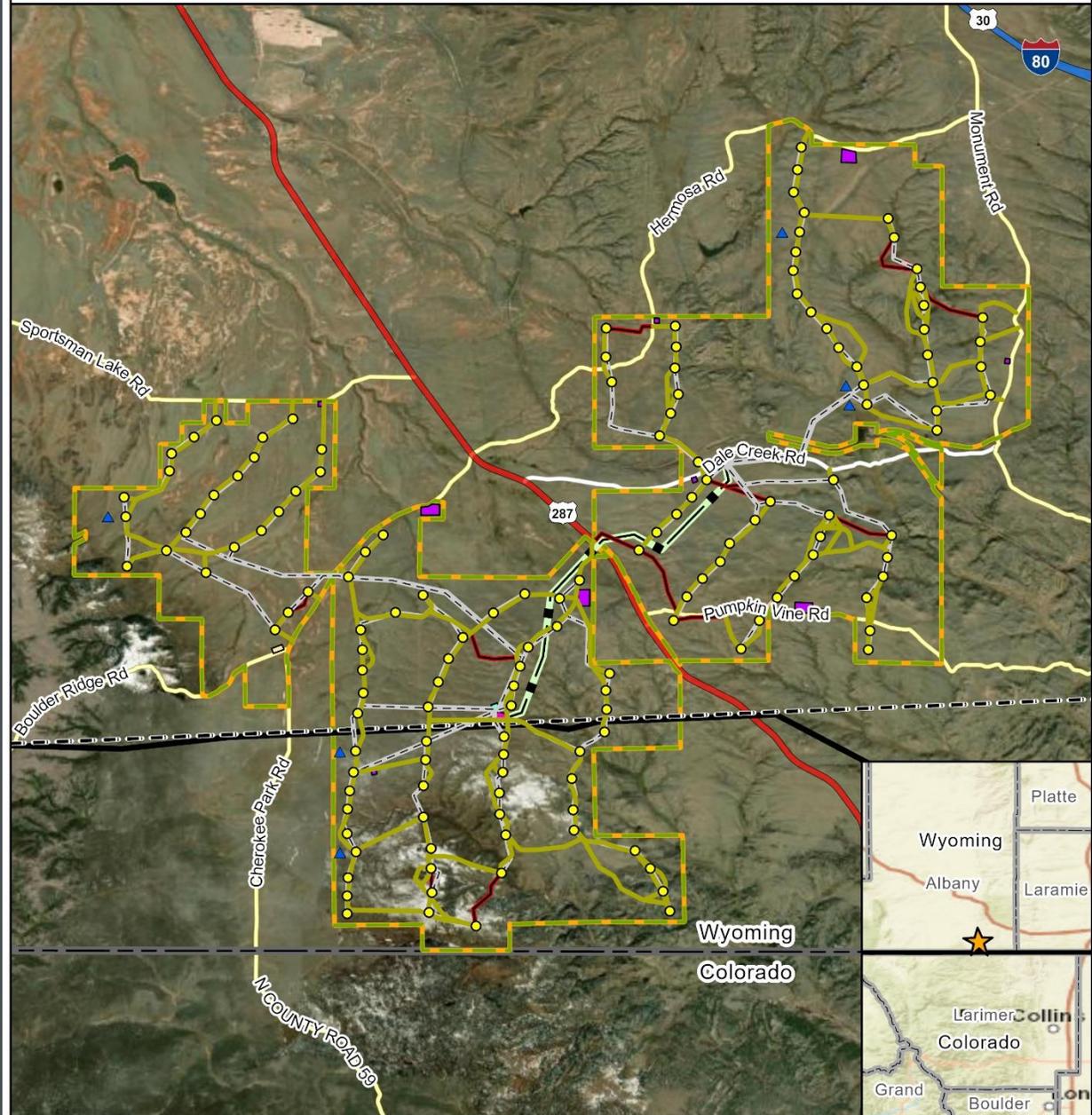


Figure 3: Representative Project Layout (3 MW Turbine)



<ul style="list-style-type: none"> Rail Tie Wind Project Boundary Interstate U.S. Highway County Road Private Road 	<ul style="list-style-type: none"> <u>Existing Transmission</u> 230 kV 345 kV <u>Representative Project Features</u> Representative Project Features 	<ul style="list-style-type: none"> ▲ Met Tower Locations Access Roads Collection Lines Crane Paths Transmission Line 	<ul style="list-style-type: none"> Phase I Project Substation Phase II Project Substation Interconnection Switchyard Laydown Yards O&M Site
--	---	--	---

PRELIMINARY: Final locations of features shown pend additional engineering, environmental surveys, and other siting considerations.

2/25/2020 1 in = 1.5 miles

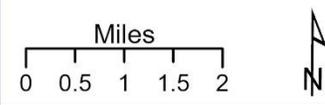
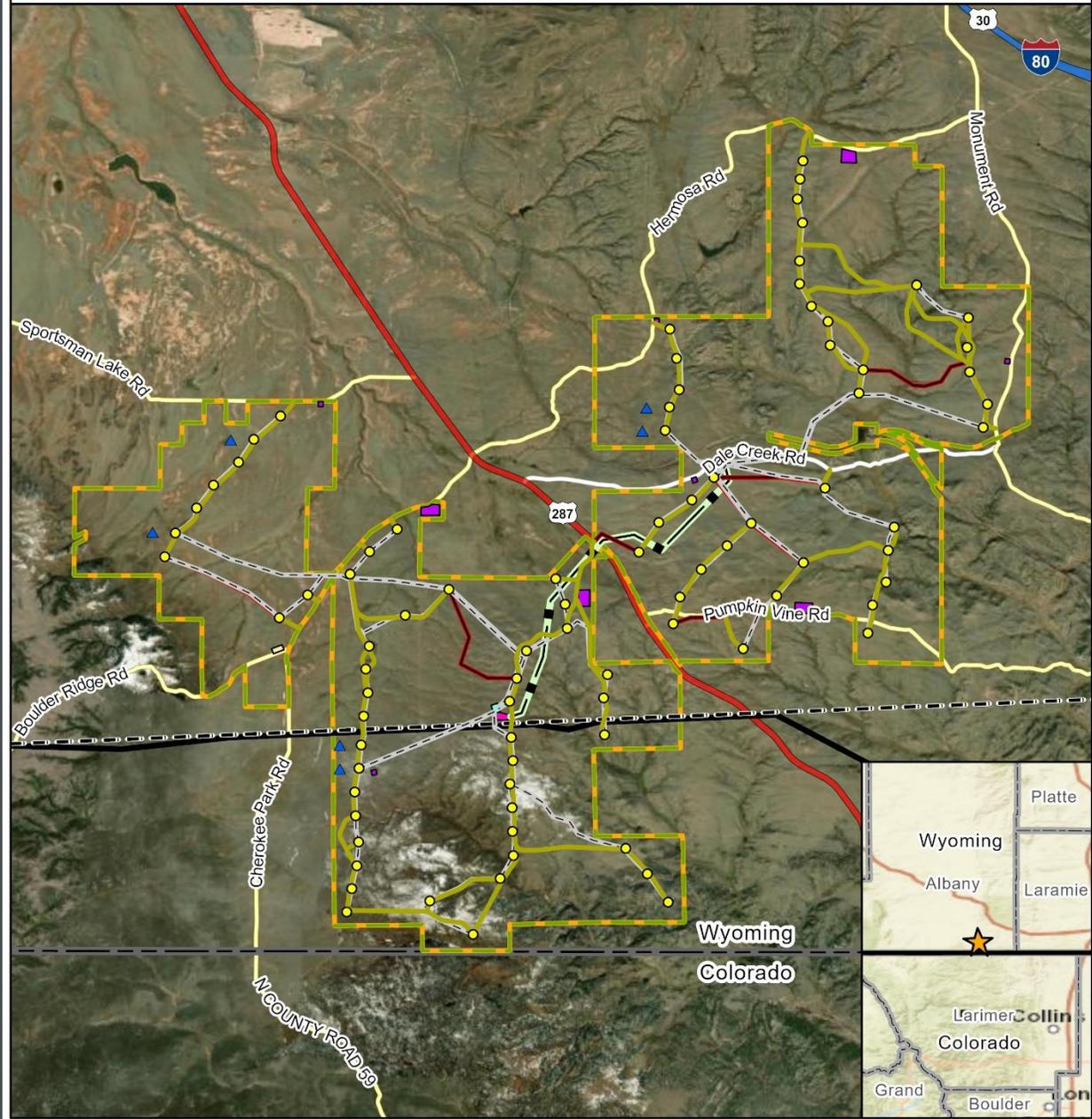


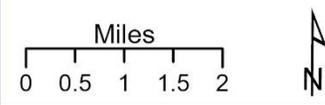
Figure 4: Representative Project Layout (6 MW Turbine)



Rail Tie Wind Project Boundary	Existing Transmission 230 kV	Met Tower Locations	Phase I Project Substation
Interstate	Existing Transmission 345 kV	Access Roads	Phase II Project Substation
U.S. Highway	Representative Project Features	Collection Lines	Interconnection Switchyard
County Road	Representative Project Features	Crane Paths	Laydown Yards
Private Road		Transmission Line	O&M Site

PRELIMINARY: Final locations of features shown pend additional engineering, environmental surveys, and other siting considerations.

1/27/2020 1 in = 1.5 miles



APPENDIX B
PROGRAMMATIC AGREEMENT

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

PROGRAMMATIC AGREEMENT

AMONG
THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
COLORADO STATE HISTORIC PRESERVATION OFFICER,
WYOMING STATE HISTORIC PRESERVATION OFFICER,
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING
THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,
WYOMING

1. **WHEREAS**, the U.S. Department of the Energy, Western Area Power Administration (WAPA), received a request from ConnectGen Albany County LLC (Applicant) for the proposed Rail Tie Wind Project (Project), to interconnect with WAPA’s Ault-Craig 345-kilovolt (kV) transmission line in Albany County, Wyoming (WY); and
2. **WHEREAS**, Applicant’s proposed Project would consist of 84 to 149 wind turbines with a generating capability of 3 to 6 megawatts (MW) each, for a combined total generating capacity of up to 504 MW, within an approximate 26,000-acre Project area roughly 15 miles southeast of Laramie, near Tie Siding and bisected in the south by U.S. Highway 287; and in addition to turbines, the proposed facility would include access roads, collection lines, a substation, switchyards, control buildings, three or more meteorological towers, and other related infrastructure, on private and state lands; and
3. **WHEREAS**, pursuant to Section 106 of the National Historic Preservation Act, as amended (NHPA: Public Law 89-665; 54 U.S.C. 300101 et seq. and 54 U.S.C. § 306108), WAPA is required to take into account the effects of its undertakings on historic properties; and with regard to this proposed Project, WAPA defines its “undertaking” as the interconnection — to which the proposed Project is a connected action under the National Environmental Policy Act (NEPA) —, and which WAPA is required to consider the request in accordance with its Open Access Transmission Service Tariff and the Federal Power Act, as amended; and
4. **WHEREAS**, WAPA lacks authority over Applicant’s proposed Project, including electrical generation methods, selection and siting of equipment, and construction and operation of the proposed Project; and
5. **WHEREAS**, WAPA, in consultation with the WY State Historic Preservation Officer (WYSHPO) and the Colorado SHPO (COSHPO), defined the area of potential effects (APE) for the undertaking as the area within which historic properties [as defined at 36 CFR § 800.16(1)(1)] may sustain loss of integrity (as defined in 36 CFR § 60.4) by alteration or destruction caused by the proposed Project, and it includes 1) horizontally, the proposed Project footprint, which entails the physical footprint of all Project facilities within an approximately 26,000-acre area where Project facilities could be built; and vertically a maximum depth of 15 feet for the construction of the wind turbine

1 foundations and a maximum height of 675 feet for construction of wind turbines, and 3) a 10-mile
2 APE from the proposed Project area boundary within which historic properties, where “setting”
3 and/or “feeling” are determined critical to a property’s National Register of Historic Places (NRHP)
4 eligibility may be present (Appendix A, herein incorporated by reference); and
5

- 6 6. **WHEREAS**, WAPA, as the lead Federal agency and in consultation with the CO and WY SHPOs,
7 determined that the proposed undertaking requires the development of a programmatic agreement
8 (PA), because identification efforts and effects on historic properties may not be fully determined
9 prior to approval of the undertaking (36 CFR § 800.14(b)(1)(ii)); and
10
- 11 7. **WHEREAS**, WAPA consulted with the CO and WY SHPOs, pursuant to 36 CFR Part 800, the
12 regulation implementing Section 106 of the NHPA (54 U.S.C. § 306108), regarding the
13 development of this PA and the APE per § 800.14(b)(ii), and both SHPOs are participating as a
14 Signatories to this PA; and
15
- 16 8. **WHEREAS**, WAPA sought input from the SHPOs about the presence of historic properties during
17 the development and early siting of the undertaking, and the SHPOs reviewed the selection of Key
18 Observation Points (KOP) determined relevant to visual analysis with regard to potential adverse
19 visual effects that may occur as a result of the proposed undertaking; and
20
- 21 9. **WHEREAS**, WAPA notified and requested the Advisory Council on Historic Preservation’s
22 (ACHP) participation in the development of this PA, and the ACHP is participating as a Signatory;
23 and
24
- 25 10. **WHEREAS**, to date, identification efforts revealed 478 previously identified recorded cultural
26 resources within the overall APE [6 National Register of Historic Places (NRHP) listed, 75 NRHP
27 eligible, 87 NRHP unevaluated, and 310 NRHP not eligible]; of which nine are within the proposed
28 Project area and 469 are within the 10-mile zone, including historic and prehistoric archaeological
29 sites, the Ames Monument National Historic Landmark (NHL), and segments of 12 linear resources
30 such as emigrant trails (Cherokee and Overland), and an intercontinental railroad (Union Pacific)
31 and highway (Lincoln Highway); and of which 390 are located in Wyoming and 88 in Colorado;
32 and
33
- 34 11. **WHEREAS**, the Ames Monument NHL, so designated by the Secretary of the Interior on October
35 31, 2016, constructed between 1880 and 1882, is a memorial to the Ames Brothers of
36 Massachusetts, designed by the prominent American architect, H. H. Richardson, and built by
37 Norcross Brothers of Worcester, Massachusetts; and
38
- 39 12. **WHEREAS**, WAPA invited Wyoming State Parks and Cultural Resources to participate in the
40 development of this PA as a Concurring Party, because they own and manage the Ames Monument
41 NHL located within the 10-mile APE within which visual effects would be assessed and 1.09 miles
42 from the Applicant’s proposed Project footprint, and it is both a State Historic Site and a NHL; and
43
44

- 1 13. **WHEREAS**, WAPA, pursuant to 36 CFR § 800.10, invited the National Park Service (NPS) due to
2 potential adverse effects to the Ames Monument NHL and possibly National Historic trails near the
3 Applicant’s proposed Project footprint, and the NPS is participating as an Invited Signatory; and
4
- 5 14. **WHEREAS**, WAPA invited the Wyoming Office of State Lands and Investments to participate in
6 the development of this PA as an Invited Signatory, because approximately 4,800 acres of State
7 Trust Lands are within the proposed Rail Tie Wind project boundary; and
8
- 9 15. **WHEREAS**, WAPA as per 36 CFR § 800.14(b)(2)(i), invited the Albany County Historic
10 Preservation Board, Alliance for Historic Wyoming, Lincoln Highway Association, Wyoming
11 Association of Professional Archaeologists, Anna Lee Ames Frohlich, and Mitchell Edwards, to
12 participate in the Section 106 consultation process for this undertaking, as these organizations,
13 special interest groups or persons have demonstrated their interest or standing in the undertaking,
14 and are participating in the development of this PA under 36 CFR § 800.2(c)(5), and each may sign
15 as a Concurring Party; and
16
- 17 16. **WHEREAS**, WAPA, as per 36 CFR § 800.14(b)(2)(ii), invited the following federally-recognized
18 tribes to participate in the Section 106 consultation process and in the development of this PA as
19 Concurring Parties: the Cheyenne River Sioux Tribe, Crow Tribe, Crow Creek Sioux Tribe, Eastern
20 Shoshone Tribe of the Wind River Reservation, Fort Peck Assiniboine and Sioux Tribes, Lower
21 Brule Sioux Tribe, Northern Arapaho Tribe, Northern Cheyenne Tribe of the Northern Cheyenne
22 Indian Reservation, Oglala Sioux Tribe, Rosebud Sioux Tribe, Santee Sioux Nation of Nebraska,
23 Shoshone-Bannock Tribes of the Fort Hall Reservation, Sisseton Wahpeton Oyate Tribes, Standing
24 Rock Sioux Tribe, Yankton Sioux Tribe, and Ute Tribe of the Uintah and Ouray Reservation; and
25
- 26 17. **WHEREAS**, of those tribes listed in Whereas #16, the Northern Arapaho Tribe, Northern
27 Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Standing Rock Sioux Tribe,
28 Yankton Sioux Tribe, and the Ute Tribe of the Uintah and Ouray Reservation are participating in
29 the Section 106 consultation process for the development of this PA, and may sign as a Concurring
30 Party to the PA; and
31
- 32 18. **WHEREAS**, WAPA agrees that for the life of the PA the agency will consider requests for Section
33 106 consultation as per 36 CFR § 800.14(b)(2)(i) from any agency, organization, special interest
34 group, person or federally recognized Indian tribes to participate in the consultation process at any
35 point in time about this undertaking; and
36
- 37 19. **WHEREAS**, WAPA sought and considered public input about cultural resources and the presence
38 of and effects to historic properties through its NEPA scoping process and comments were
39 considered and addressed, and WAPA will consider all NEPA comments regarding cultural
40 resources and historic properties up to the signing of this document; and
41
- 42 20. **WHEREAS**, ConnectGen Albany County, LLC (and/or by extension its successor) is participating
43 as an Invited Signatory to this PA, and will fund all cultural resource identification, documentation
44 and treatment and mitigation efforts, which may include, but are not limited to, cultural resources
45 literature reviews, surveys, historic building surveys, traditional cultural property surveys, visual
46 analysis of the proposed undertaking’s viewshed, noise analysis, reports, site records, a monitoring

1 and discovery plan, historic property treatment plan(s) (HPTP), or other measures agreed upon
2 through consultation, to avoid, minimize or mitigate potential adverse effects to historic properties;
3 and
4

5 21. **WHEREAS**, Applicant is committed to implementing environmental protection measures to reduce
6 direct and indirect impacts to cultural resources, such as, reducing visual impacts when designing
7 the layout of structures, buildings and infrastructure, using setbacks to avoid direct disturbance, and
8 seeking approval from the Federal Aviation Administration to use a sensor-based Aircraft Detection
9 Lighting System to reduce nighttime lighting; and
10

11 22. **WHEREAS**, definitions in Appendix B (herein incorporated by reference) are applicable to this
12 PA;
13

14 **NOW, THEREFORE**, WAPA, Applicant, SHPOs, NPS and ACHP agree WAPA's undertaking, and
15 Applicant's connected action shall be administered in accordance with the following stipulations to satisfy
16 WAPA's Section 106 responsibility.
17

18 **STIPULATIONS**

19
20 The following stipulations will be carried out as follows:
21

22 **I. CULTURAL RESOURCES SERVICES AND PROFESSIONAL STANDARDS**

23
24 A. Applicant shall contract for all cultural resource identification and treatment/mitigation efforts.
25 The cultural resources contractor shall be qualified to conduct cultural resources literature
26 reviews, surveys, historic building surveys, traditional cultural property surveys, visual analysis
27 of the proposed undertaking's viewshed, reports, site records, a monitoring and discovery plan,
28 and historic property treatment plan(s) to minimize or mitigate adverse effects to historic
29 properties. Applicant will ensure that all work conducted under the terms of this PA meets the
30 Secretary of the Interior's Standards for Archeology and Historic Preservation (48 FR 44716)
31 (*Federal Register*, September 29, 1983) and is consistent with the ACHP's guidance on
32 archaeology and all applicable National Park Service guidance for evaluating cultural resources
33 for eligibility to the NRHP. WAPA defines conventions or standards for inventory and survey
34 intensity to adequately identify historic properties within the APE. All inventory/survey
35 activities will meet WAPA and SHPOs reporting/documentation standards, which are available
36 on the CO and WY SHPO websites. All formal Section 106 consultation with the WY SHPO
37 will be submitted in WyoTrack. In CO the Applicant shall obtain appropriate permits to
38 conduct archaeological field work and be in good standing, complying with the reporting
39 standards.
40

41 B. Applicant shall ensure that all cultural resources services will be carried out by or under the
42 direct supervision of a person or persons meeting, at a minimum, the applicable professional
43 qualifications standards set forth in the Secretary of the Interior's (Secretary) *Standards for*
44 *Archeology and Historic Preservation* (48 FR 44716) (*Federal Register*, September 29, 1983)
45 in the appropriate discipline. WAPA must review the cultural resources contractor's

1 professional qualifications, and any permits obtained, to determine that the contractor meets the
2 Secretary’s qualifications prior to cultural resources work being conducted.

3
4 C. WAPA shall consult with federally recognized Indian tribes who wish to participate in the
5 consultation process about the presence of historic properties and properties of traditional
6 religious and cultural significance within the APE. WAPA will consult with tribes at any point
7 in time about this undertaking.

8
9 D. Applicant shall provide WAPA with full documentation of all their efforts to coordinate with
10 tribes including, but not limited to, copies of all correspondence, telephone logs, meeting
11 agendas, notes, and contact information.

12
13 **II. PROTECTION OF CONFIDENTIAL INFORMATION**

14 To the extent consistent with NHPA (Section 304), the Archaeological Resources Protection Act, Section
15 9(a), regulations or statutes, cultural resource data from this proposed undertaking will be treated as
16 confidential by all consulting parties and will not be disseminated to any person, organization or agency that
17 is not a consulting party to this PA. All archeological locational information is confidential. WAPA may
18 redact locational or tribally sensitive information from cultural resources survey reports or other
19 documentation prior to sharing the information, unless such information is already available on an
20 unrestricted basis in a state cultural resources database or information center, or the tribe whose information
21 is of concern agrees in writing that the information may be shared. Applicant and WAPA will respect
22 confidentiality concerns expressed by tribes for properties of traditional religious and cultural significance
23 (NHPA 101(d)(6)(A)).

24
25 **III. INVENTORY, NRHP EVALUATIONS, EFFECTS AND CONSULTATION**

26
27 A. Historic Property Identification:

28 Identification of historic properties will occur by 1) performing a Class I or literature review to
29 identify known cultural resources within the APE, 2) consulting with parties to this PA, and 3)
30 performing a Class III inventory of areas within the Project footprint, as agreed to between
31 WAPA, SHPO and Applicant, which shall be completed prior to construction. Additional
32 literature reviews or Class III surveys may be necessary for substantial scope or APE changes.
33 To ensure no trespassing issues arise, Applicant shall obtain right-of-entries for the lands in the
34 proposed APE prior to initiation of the Class III inventory.

35
36 B. NRHP Evaluations and Effects:

37 1. Applicant’s cultural resources contractor will make recommendations to WAPA about
38 NRHP evaluations of all cultural resources documented within the proposed Project
39 footprint APE. Cultural resources will be evaluated under all four NRHP Criteria and all
40 seven aspects of integrity. Evaluations by the contractor may include limited shovel testing
41 at archaeological sites during surveys to assess eligibility under Criterion D only. Shovel
42 tests may be conducted to assess deposition, integrity and the presence of data needed to
43 address research questions that are considered locally or regionally important. Any artifacts
44 found on private land in a shovel test will be replaced in the shovel test unit after being
45 properly documented, unless otherwise requested by the landowner. Any artifacts found on

1 State land in a shovel test will be collected, analyzed and curated at the University of
2 Wyoming at the Applicant's expense.

- 3
4 2. Effects from the undertaking will be assessed for all historic properties documented within
5 the APE, except only visual effects will be assessed for historic properties that are eligible
6 under NRHP Criteria A and/or C, where setting and/or feeling are integral to the integrity of
7 the resource, and are located within the viewshed of the 10-mile APE.
8

9 C. Consultation: WAPA will consult on NRHP eligibility determinations and effects to cultural
10 resources within the proposed Project footprint, including those properties identified within the
11 APE, where "setting" and "feeling" are integral to their eligibility, and which may be affected
12 by the proposed undertaking:

- 13 1. WAPA will review the contractor's literature review and Class III reports and submit them
14 to consulting parties (except SHPOs) for a **30-calendar day** review period. If additional
15 reports are needed, the same process outlined in this stipulation will be followed.
16 Comments shall focus on the adequacy of documentation, NRHP eligibility
17 recommendations and potential effects to historic properties. WAPA will consider all
18 comments and the contractor shall revise the report(s) if necessary. If comments are not
19 received within the **30-calendar day** review period, WAPA will move forward per
20 Stipulation II.C.2.
21

- 22 2. Class III inventory is only anticipated to occur in WY within the proposed Project footprint.
23 WAPA will submit the Class III inventory report(s), associated site forms and any
24 comments received from consulting parties per Stipulation II.C.1 to the WY SHPO with
25 WAPA's determinations of eligibility and effect for a **30-calendar day** review period. The
26 WY SHPO will comment on WAPA's NRHP eligibility and effect determinations. WAPA
27 will seek consensus on determinations of eligibility. However, if WAPA and the WY
28 SHPO do not agree on eligibility within **30 calendar days**, WAPA will continue to consult
29 with the WY SHPO or request a determination of eligibility from the Keeper of the
30 National Register (The Keeper) pursuant to 36 CFR § 800.4(c)(2) and 36 CFR Part 63. The
31 Keeper's determination is final. For cultural resources that WAPA and the WY SHPO
32 agree are not eligible for listing in the NRHP, no further review or consideration is required
33 under this PA. If comments are not received within the **30-calendar day** review period,
34 WAPA will consider its eligibility and effect determinations as final for the purposes of the
35 proposed undertaking. If changes in the APE require Class III survey in CO, consultation
36 with COSHPO will occur, and the parties follow the same review process as described in
37 this stipulation.
38

- 39 3. WAPA will make a reasonable and good faith effort to engage federally recognized Indian
40 tribes to identify properties of traditional religious and cultural significance and determine
41 if historic properties exist within the APE. Should properties of traditional religious and
42 cultural significance be identified, at Applicant's expense, such resources may be
43 documented or discussed in a separate report.
44

45 D. If WAPA agrees to the interconnection and construction begins, variances may be
46 needed, and additional survey may be necessary in areas not previously

1 surveyed. Recognizing the potential for high costs associated with construction delays,
2 Applicant, WY SHPO, and consulting parties agree to the process stated below for
3 cultural resources survey, reporting and consultation:

- 4 1. If no cultural resources are identified, WAPA will submit a description and map of
5 the proposed variance and provide the Applicant with a notice to proceed by email
6 without waiting for SHPO review of the final Class III inventory. The draft report
7 will be sent to the SHPO by email. Any comments to WAPA will be accepted by
8 email. WAPA will request that the Applicant's cultural resources contractor revise
9 the report as necessary and WAPA will submit it to the SHPO through WyoTrack
10 on-line for informational purposes. The survey and report will be mentioned in the
11 Annual Report for the undertaking.
12
- 13 2. If cultural resources are identified, and they will be avoided, WAPA will submit its
14 determinations of eligibility and findings of effect and submit a description and map
15 of the proposed variance along with scanned versions of the Wyoming Cultural
16 Properties forms to the SHPO via email who will have **3 business days** from receipt
17 to provide comments to WAPA. If the SHPO does not respond by email within the
18 stated timeframe, WAPA may consider its determinations of eligibility and findings
19 of effect final and provide the Applicant with a notice to proceed by email. If
20 WAPA and the SHPO disagree on eligibility, WAPA will continue to consult with
21 the SHPO to reach consensus or request a determination of eligibility from The
22 Keeper, pursuant to 36 CFR § 800.4(c)(2) and 36 CFR Part 63. The Keeper's
23 determination is final. WAPA may continue to consult on any findings of effect or
24 submit any disagreement on findings of effect to the ACHP for review and
25 comment per 36 CFR § 800.4(d)(1)(iv)(A). Upon completion, the final Class III
26 report and associated Wyoming Cultural Properties forms will be submitted through
27 WyoTrack on-line. The survey and report will be mentioned in the Annual Report
28 for the undertaking.
29
- 30 3. If cultural resources are identified within the variance and the Applicant notifies
31 WAPA that the cultural resources cannot be avoided by the undertaking, WAPA
32 will not provide a notice to proceed for that surveyed area until WAPA has
33 completed consultation as stipulated under Stipulation III.C and potentially under
34 Stipulation IV.
35

36 **IV. HPTP DEVELOPMENT AND RESOLUTION OF ADVERSE EFFECTS**

- 37 A. If WAPA determines that the undertaking will have adverse effects on historic properties,
38 WAPA shall consult with SHPOs, consulting parties and Indian tribes to develop and evaluate
39 adjustments or modifications to the undertaking that could avoid, minimize, or mitigate adverse
40 effects to those properties.

- 1 B. WAPA will advise the Applicant, to the maximum extent possible, on planning and actions that
2 may be appropriate to minimize adverse effects to the Ames NHL that may be caused by the
3 undertaking (36 CFR § 800.10).
- 4 C. WAPA, through the Applicant, will resolve adverse effects on historic properties through the
5 development and implementation of one or more HPTP, as described below. The HPTP will
6 provide specific avoidance, minimization, or mitigation measures, commensurate with the
7 adverse effects, including cumulative effects, that may be caused by the undertaking.
- 8 1. HPTPs will be prepared in consultation with SHPO, consulting parties and Indian tribes,
9 and will be consistent with the Secretary's Standards; the Advisory Council on Historic
10 Preservation's Section 106 Archaeology Guidance (2009); the Historic American Buildings
11 Survey (HABS), Historic American Engineering Record (HAER), and Historic American
12 Landscapes Surveys (HALS) guidance (<http://www.nps.gov/hdp/>); and appropriate state
13 guidelines. WAPA will hold consultation meetings or video conference calls to discuss
14 development of the HPTP.
- 15 2. HPTP Development, Review and Acceptance:
16 a. WAPA with the Applicant will develop a HPTP outline and consult with the consulting
17 parties to determine HPTP content and specific treatment or mitigation proposed for the
18 historic properties or groups of historic properties adversely affected.
- 19 b. Once an HPTP is completed and accepted by WAPA, the WAPA will provide the
20 HPTP to the consulting parties for a 30-day review.
- 21 c. WAPA will take all comments into account and request of the Applicant to revise the
22 HPTP, as appropriate. The Applicant will revise the HPTP and provide it to WAPA
23 within 10 days. WAPA will submit the final HPTP to the consulting parties and the
24 appropriate SHPO for a 30-day review and concurrence. WAPA will endeavor to reach
25 consensus on the HPTP, but if the consulting parties fail to resolve adverse effects in a
26 reasonable timeframe, WAPA will comply with 36 CFR § 800.7 and seek ACHP
27 comment and move forward accordingly. The final HPTP will be appended to
28 Appendix C (herein incorporated by reference) of this PA.
- 29 3. The introductory content of the HPTP will include the undertaking overview, a list or table
30 of all identified historic properties within the APE, including those determined visually or
31 indirectly affected within the 10-mile APE, maps, and monitoring procedures and discovery
32 protocols, as detailed in Section 4 of this Stipulation.
- 33 a. The HPTP list or table of historic properties will include state, land ownership,
34 township, range, and section and Smithsonian number. The list or table will also include
35 a field for archaeological properties indicating the probability of buried subsurface
36 deposits, treatment to address the direct and cumulative effects of the undertaking for
37 historic properties and specific groups of historic properties (e.g., archaeological sites,
38 trails, etc.), and identify whether treatment or mitigation must be implemented prior to
39 construction activities occurring in an area (e.g., archaeological data recovery, landscape

1 photography), or will be implemented during or post ground-disturbing activities (e.g.,
2 historical research, installation of an interpretive kiosk, public education materials, etc.).

- 3 b. Subsequent sections or chapters of the HPTP will identify each specific historic property
4 or group of historic properties that will be adversely affected and cannot be avoided and
5 will include the following:
- 6 i. A distinctive name or number (Smithsonian number).
 - 7 ii. A brief description of the historic property.
 - 8 iii. Its location in terms of distance and direction from a project-defined milepost(s) or
9 similar established markers.
 - 10 iv. The type of disturbance that will affect the historic property.
 - 11 v. The nature or kind of each required treatment measure (avoidance, minimization,
12 mitigation) pertaining to each historic property (e.g., landscape photography,
13 archaeological data recovery, etc.).
 - 14 vi. The identification of treatment measures, if any, which must be completed prior to
15 construction activities and/or those measures which may be completed after
16 construction.
 - 17 vii. The documentation and reporting procedures for each proposed treatment measure.
 - 18 viii. Each subsection of the HPTP that concerns an archaeological historic property will
19 incorporate a research design as needed to guide data recovery and other treatment
20 efforts. Existing research designs may be used within acceptable historic context
21 documents when the consulting parties agree that they are appropriate to a specific
22 historic property or group of properties.
 - 23 ix. WAPA released the Draft Environmental Impact Statement to cooperating agencies
24 on January 7, 2021, and discussions began between cooperating agencies about ideas
25 on possible treatment measures for potential adverse visual effects on the Ames
26 Monument NHL and other potential historic properties within the APE that may
27 include one or a combination of the following, but are not limited to:
 - 28 (a) Completion of NRHP nomination forms.
 - 29 (b) Conservation easements.
 - 30 (c) Completion of all technical aspects of HABS, HAER, and HALS
31 documentation such that submittal can be filed with the Library of Congress.
 - 32 (d) Documentation of local or regional resources to be submitted to the
33 appropriate SHPO or State Archives.
 - 34 (e) Purchase of land containing historic properties for transfer to protective
35 management/ownership with willing consent of landowner.
 - 36 (f) Partnerships and funding for public archaeology projects or volunteer public
37 outreach.
 - 38 (g) Print publication (brochure/book)
 - 39 (h) Digital media productions (website/podcast/video/narrated drone footage).
 - 40 (i) Access to historic properties otherwise unavailable to the public.
 - 41 (j) Interpretation of historic properties and development of signage.
 - 42 (k) Ames Monument NHL Preservation.
 - 43 (l) Hiking trail system to connect to the Ames Monument NHL.
 - 44 (m) Physical repairs to Ames NHL; and

1 (n) Partnering with WY SHPO on site stewardship for Ames and surrounding
2 historic properties.
3

4 4. Included in the HPTP will be the procedures for archaeological monitoring, and tribal
5 monitoring, if appropriate, and handling and reporting of discoveries of previously
6 unidentified cultural resources or human remains, and NRHP evaluation, and HPTP
7 treatment implementation, if appropriate.

8 a. Archaeological monitoring will, as appropriate, include archaeological inspection of
9 construction activities by personnel under the direct supervision of a person meeting
10 the Secretary of the Interior's Professional Qualifications standards.

11 b. Monitoring may include tribal monitors within construction areas near historic
12 properties or site types previously identified as significant to tribes or at testing or
13 excavation locations, should it be appropriate and permitted by the landowner.

14 c. Any cultural resource discovered during pre-construction, construction, and/or
15 construction monitoring, will be treated in accordance with the inadvertent discovery
16 protocols in the PA or if human remains or funerary objects be discovered at any time
17 within WY, the Applicant shall comply with the Wyoming Statute 7-4-106. All costs
18 to treat, mitigate, remove and curate any archaeological materials or human remains
19 shall be borne by the Applicant.

20 d. The HPTP will discuss curation of human remains and funerary objects which shall
21 comply with WY state protocol until such time repatriation occurs. Archaeological
22 materials collected during data recovery excavations on state lands shall be curated at
23 the University of Wyoming. Archaeological materials collected during data recovery
24 excavations on private land will be either turned over to the landowner after
25 appropriate analysis is completed. The landowner may donate the materials to a
26 museum or a curation facility.

27 e. After the completion of treatment measures, a preliminary summary report will be
28 prepared and distributed to the appropriate consulting parties.

29 f. The Applicant shall ensure that the final results of treatment efforts are reported to
30 WAPA in a final report, which WAPA will provide to the SHPO.
31

32 V. DISCOVERIES

33
34 A. WAPA and Applicant agree that during the lifetime of this PA if archaeological materials are
35 discovered as a result of the undertaking's construction activity, the discovery will be protected
36 from further disturbance, all earth disturbing activities will cease within 30 meters (100 feet) of
37 the discovery, and heavy equipment will be removed from the area until the discovery is
38 assessed and documented. WAPA will be notified immediately about the discovery. If the
39 discovery is an isolated find and determined by the cultural resources' contractor in consultation
40 with WAPA as not eligible for NRHP listing, it will be documented, and the activity will
41 proceed with no further consultation. For all other discoveries, WAPA may assume the

1 discovery as eligible for NRHP listing pursuant to 36 CFR § 800.13(c) or consult with the tribes
2 and SHPO regarding its eligibility. WAPA will notify the SHPO and tribes by phone within 24
3 hours of the discovery. As required by 36 CFR 800.13, WAPA will also consult with the
4 ACHP if the discovery was, or will be, adversely affected by the construction activity.
5

- 6 B. WAPA and Applicant agree that at any time if human remains are discovered, work shall cease
7 within 30 meters (100 feet) of the discovery. If the PA is still in effect, discoverer shall
8 immediately notify Applicant and WAPA by telephone and in writing within 24 hours of the
9 discovery (email is acceptable). If human remains are encountered after this PA expires, the
10 discoverer shall immediately notify the Applicant who shall contact the SHPO and follow the
11 procedures set forth in Wyoming Statute 7-4-106.
12

13 VI. PA ANNUAL REPORTING AND REVIEW

14 Applicant shall prepare an annual letter report to WAPA for the duration of this PA regarding how it has
15 carried out the stipulations of this PA and activities associated with the HPTP. The annual letter report
16 should include Project status and schedule, and if appropriate any APE expansions/modifications, variances
17 or changes in scope, cultural resources monitoring or mitigation activities, HPTP activities, discovery
18 situations, and outstanding tasks to be completed under this PA. The implementation and operation of this
19 PA shall be evaluated on an annual basis by WAPA and the SHPOs. For the first two years from the
20 execution of this PA, WAPA shall hold either a face-to-face meeting or video conference meeting to discuss
21 the status of the project and PA. After the first two years, annual meetings may be held at the request of any
22 Signatory or Invited Signatory. Any Signatory or Invited Signatory may request additional information
23 from Applicant, which they will share with all consulting parties. WAPA shall inform the Signatories and
24 Invited Signatories when all stipulations of this PA have been carried out.
25
26

27 VII. DISPUTE RESOLUTION

- 28
29 A. If any Signatory or Invited Signatory to this PA objects at any time to any actions proposed or
30 to the manner in which the terms of this PA are implemented, WAPA shall notify the SHPO
31 and other Signatories and Invited Signatories about the objection by email and will consult with
32 the objecting party to resolve the matter. If WAPA determines that such objection cannot be
33 resolved, WAPA will forward the objection to the ACHP for its advisory comments.
34
35 B. If the ACHP does not provide its advisory comments regarding the dispute within **30 calendar**
36 **days**, WAPA may make a final decision on the dispute and proceed accordingly. Prior to
37 reaching such a final decision, WAPA shall prepare a written response that takes into account
38 any timely comments regarding the dispute from the Signatories and Invited Signatories to the
39 PA and provide them and the ACHP with a copy of such written response.
40
41 C. The Signatories' responsibilities to carry out all other actions subject to the terms of this PA that
42 are not the subject of the dispute remain unchanged.
43
44
45
46

1 **VIII. AMENDMENT**

2
3 This PA may be amended in counterparts when such an amendment is agreed to in writing by all Signatories
4 and Invited Signatories who have signed this PA. WAPA will distribute copies of any amendments to the
5 Signatories, Invited Signatories and Concurring Parties. An amendment will be effective after it is signed
6 by all Signatories and filed with the ACHP.
7

8 **IX. TERMINATION**

9
10 If any Signatory or Invited Signatory to this PA determines that its terms will not or cannot be carried out,
11 that Signatory or Invited Signatory shall immediately consult with the other Signatories and Invited
12 Signatories to attempt to develop an amendment. If, within thirty **30 calendar days** (or another time period
13 agreed to by all Signatories and Invited Signatories), an amendment cannot be reached, the Signatory or
14 Invited Signatory who has signed this PA may withdraw their participation in the PA or request that the PA
15 terminated upon written notification to the other Signatories and Invited signatories. All Signatories and
16 Invited Signatories must agree that the terms of this PA will not or cannot be carried out to terminate
17 this PA. If the PA is terminated before the proposed undertaking has started or finished, WAPA shall
18 notify the Signatories and Invited Signatories on the course of action it will pursue, that is either:

- 19 A. follow the procedures outlined in 36 CFR §§ 800.4 - 800.6 for WAPA's undertaking and
20 connected action, or
21
22 B. execute a new PA pursuant to 36 CFR § 800.14(b), or
23
24 C. request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7.
25

26 **X. DURATION OF THIS PA**

27
28 This PA will be in effect for the life of the project (i.e. construction, operation, and decommissioning) from
29 the date of its execution, unless the PA is amended pursuant to Stipulation VII with a new expiration date
30 prior to such time or terminated pursuant to Stipulation IX.
31

32 **XI. WYOMING GENERAL PROVISIONS**

- 33
34 A. Entirety of Agreement. This PA, consisting of thirty-two (32) pages, Appendix A consisting of
35 one (1) page, Appendix B consisting of one (1) page, and Appendix C (number of pages yet to
36 be determined), represents the entire agreement between the Parties and supersedes all prior
37 negotiations, representations and agreements, whether written or oral, regarding compliance
38 with Section 106 of the NHPA.
39
40 B. Prior Approval. This PA shall not be binding upon any Signatory or Invited Signatory who has
41 signed this PA unless this PA has been reduced to writing before performance begins as
42 described under the terms of this PA, and unless the PA is approved as to form by the Wyoming
43 Attorney General or his or her representative.
44
45 C. Severability. Should any portion of this PA be judicially determined to be illegal or
46 unenforceable, the remainder of the PA shall continue in full force and effect, and any

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44

Signatory or Invited Signatory who has signed this PA may renegotiate the terms affected by the severance.

- D. Sovereign Immunity. The State of Wyoming and the WY SHPO expressly reserve their sovereign or governmental immunity by entering into this PA, and the tribes do not waive their sovereign immunity by concurring with this PA, and each fully retains all immunities and defenses provided by law with respect to any action based on or occurring as a result of this PA.
- E. Indemnification. Each Signatory to this PA shall assume the risk of any liability arising from its own conduct. Each Signatory agrees they are not obligated to insure, defend or indemnify the other Signatories to this PA.

EXECUTION of this PA by the Signatories and implementation of its terms are evidence that WAPA has taken into account the effects of its undertaking and connected action on historic properties and afforded the ACHP an opportunity to comment on it in compliance with Section 106. Effective date of the PA is the date the PA is signed by the ACHP and filed with their office.

1 **PROGRAMMATIC AGREEMENT**

2 **AMONG**

3 **THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,**
4 **COLORADO STATE HISTORIC PRESERVATION OFFICER,**
5 **WYOMING STATE HISTORIC PRESERVATION OFFICER,**
6 **AND**
7 **ADVISORY COUNCIL ON HISTORIC PRESERVATION**

8 **REGARDING**

9 **THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,**
10 **WYOMING**

11 **SIGNATORY**

12 **WYOMING STATE HISTORIC PRESERVATION OFFICE**

13
14
15
16
17
18
19
20 By:  Date: 9/13/2021
21 Sara Needles, State Historic Preservation Officer

22
23
24 Approval as to Form:
25 Wyoming Attorney General's Office

26
27
28 By: _____ Date: _____
29 Tyler Renner, Assistant Attorney General

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

PROGRAMMATIC AGREEMENT

AMONG
THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
COLORADO STATE HISTORIC PRESERVATION OFFICER,
WYOMING STATE HISTORIC PRESERVATION OFFICER,
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING
THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,
WYOMING

INVITED SIGNATORY

CONNECTGEN ALBANY COUNTY LLC – RAIL TIE WIND PROJECT

By:  Date: 6/14/2021
Caton Fenz, Chief Executive Officer



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

PROGRAMMATIC AGREEMENT

AMONG
THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
COLORADO STATE HISTORIC PRESERVATION OFFICER,
WYOMING STATE HISTORIC PRESERVATION OFFICER,
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION

REGARDING
THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,
WYOMING

INVITED SIGNATORY

WYOMING OFFICE OF STATE LANDS AND INVESTMENTS

By: _____ Date: _____
Jenifer E. Scoggin, Director

**WYOMING ATTORNEY
GENERAL'S OFFICE**

JUL 15 2021

 **#214076**
Tyler M. Renner
APPROVED AS TO FORM

1 **PROGRAMMATIC AGREEMENT**

2 **AMONG**

3 **THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,**
4 **COLORADO STATE HISTORIC PRESERVATION OFFICER,**
5 **WYOMING STATE HISTORIC PRESERVATION OFFICER,**
6 **AND**
7 **ADVISORY COUNCIL ON HISTORIC PRESERVATION**

8 **REGARDING**

9 **THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,**
10 **WYOMING**

11 **CONCURRING PARTY**

12 **ALLIANCE FOR HISTORIC WYOMING**

13
14
15
16
17
18
19
20 By: _____ Date: _____
21 Rin Kasckow, Executive Director

PROGRAMMATIC AGREEMENT

AMONG

**THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
COLORADO STATE HISTORIC PRESERVATION OFFICER,
WYOMING STATE HISTORIC PRESERVATION OFFICER,
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION**

REGARDING

**THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,
WYOMING**

CONCURRING PARTY

LINCOLN HIGHWAY ASSOCIATION

By: _____ Date: _____
James Davis, Wyoming Member

1 **PROGRAMMATIC AGREEMENT**

2 **AMONG**

3 **THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,**
4 **COLORADO STATE HISTORIC PRESERVATION OFFICER,**
5 **WYOMING STATE HISTORIC PRESERVATION OFFICER,**

6 **AND**

7 **ADVISORY COUNCIL ON HISTORIC PRESERVATION**

8 **REGARDING**

9 **THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,**
10 **WYOMING**

11 **CONCURRING PARTY**

12 **NORTHERN ARAPAHO TRIBE OF THE WIND RIVER INDIAN RESERVATION**

13
14
15
16
17
18
19
20 By: _____ Date: _____
21 Ben Ridgley, Tribal Historic Preservation Officer

1 **PROGRAMMATIC AGREEMENT**

2 **AMONG**

3 **THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,**
4 **COLORADO STATE HISTORIC PRESERVATION OFFICER,**
5 **WYOMING STATE HISTORIC PRESERVATION OFFICER,**
6 **AND**
7 **ADVISORY COUNCIL ON HISTORIC PRESERVATION**

8 **REGARDING**

9 **THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,**
10 **WYOMING**

11 **CONCURRING PARTY**

12 **NORTHERN CHEYENNE TRIBE OF THE NORTHERN CHEYENNE INDIAN RESERVATION**

13
14
15
16
17
18
19
20 By: _____ Date: _____
21 Teanna Limpy, Tribal Historic Preservation Officer

PROGRAMMATIC AGREEMENT

AMONG

**THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,
COLORADO STATE HISTORIC PRESERVATION OFFICER,
WYOMING STATE HISTORIC PRESERVATION OFFICER,
AND
ADVISORY COUNCIL ON HISTORIC PRESERVATION**

REGARDING

**THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,
WYOMING**

CONCURRING PARTY

STANDING ROCK SIOUX TRIBE

By: _____ Date: _____
Jon Eagle, Tribal Historic Preservation Officer

1 **PROGRAMMATIC AGREEMENT**

2 **AMONG**

3 **THE U.S. DEPARTMENT OF ENERGY-WESTERN AREA POWER ADMINISTRATION,**
4 **COLORADO STATE HISTORIC PRESERVATION OFFICER,**
5 **WYOMING STATE HISTORIC PRESERVATION OFFICER,**
6 **AND**
7 **ADVISORY COUNCIL ON HISTORIC PRESERVATION**

8 **REGARDING**

9 **THE INTERCONNECTION OF THE RAIL TIE WIND PROJECT, ALBANY COUNTY,**
10 **WYOMING**

11 **CONCURRING PARTY**

12 **THE UTE TRIBE OF THE UINTAH AND OURAY RESERVATION**

13
14
15
16
17
18
19
20 By: _____ Date: _____
21 Luke Duncan, Chairman

APPENDIX C

PUBLIC COMMENTS AND ASSOCIATED RESPONSES

COMMENT(S)

0001: Scott Gamo, Wyoming Department of Transportation



WYOMING Department of Transportation

"Providing a safe, high quality, and efficient transportation system"

5300 Bishop Boulevard, Cheyenne, Wyoming 82009-3340



April 7, 2021

Mark Wieringa
Rail Tie Wind Project
WAPA Headquarters
PO Box 281213
Lakewood, CO 80228-8213

RE: Comments pertaining to the Rail Tie Wind Project

Dear Mr. Wierings,

The staff at Wyoming Department of Transportation (WYDOT) has reviewed the information pertaining to the Rail Tie Wind Project. We offer the following comments for your consideration:

- As stated in Project Application, WYDOT will require a Road Use Agreement for all affected State routes.
- Also as stated, a detailed Traffic Control Plan will be required. This must be put together by the developer with collaboration between WYDOT, WHP, local law enforcement. The plan must include, but is not limited to:
 - Detailed plans for OWL turnarounds/closures at interchanges, intersections, or median crossovers. Reference WYDOT standard plan for Planned Event Turnaround.
 - Provide operational analysis/design for every major intersection or interchange affected to identify temporary improvements/changes to accommodate expected OWL turning templates. Goal will be to minimize closure and delay time, especially at busy intersections and high-speed roadway facilities. Possible changes include larger radii, addition of turning lanes, installation of removable sign supports, etc.
 - Identify specific timing plans for OWL moves and acceptable windows to avoid peak traffic times and times where law enforcement may not be available for support. Spread out demand.
 - OWL permits for weekend moves must be submitted by Wednesday of the previous week.
- All OWL hauling companies MUST have proper experience and certifications.
- Any modifications to the Vedauwoo Interchange ramps will require a submittal to FHWA for approval.
- Ensure WYDOT right-of-way markers are not disturbed or have a plan in place if they may be.
- Any incoming or outgoing utilities will need to be licensed through the District Maintenance Office.
- Modifications to approaches onto US 287 will require permitting through WYDOT District Traffic Office.

0001-01

RESPONSE(S)

Western Area Power Administration

0001-01

A Public Road Use Plan and Transportation Analysis Technical Report were developed in support of Albany County and ISC permit applications. A Traffic and Transportation Management Plan will be finalized in coordination with WYDOT and Albany County Road and Bridge once final haul routes are determined. A County Road Use Agreement and State Road Use Agreement will be executed before construction.

COMMENT(S)

0001: Scott Gamo, Wyoming Department of Transportation, continued

Please contact WYDOT District 1 (Laramie) at 307-745-2100 concerning permits and project related issues. If you have any further questions or concerns, please contact Scott Gamo at 307-777-4379.

Sincerely,



Scott Gamo, Ph.D.

Environmental Services Manager

cc: Ralph Tarango, P.E., District Engineer

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0002: Paul Montoya, Albany County for Smart Energy Development

Albany County for Smart Energy Development

Mark Wieringa
Western Area Power Administration
12155 W. Alameda Parkway
Lakewood, CO 80228
RE: Rail Tie Wind Project

CERTIFIED MAIL

Mr. Wieringa:

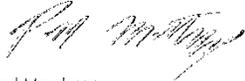
Albany County for Smart Energy Development is a group of citizens that have substantial concerns regarding the development of the Rail Tie Wind Project in southern Albany County. WAPA has submitted a Draft Environmental Impact Statement (EIS) that is in the Public Comment Period. Two "Virtual Public Hearings" are currently scheduled for April 28 and 29th.

Current State of Wyoming and Albany County health guidelines allow for indoor gatherings of up to 500 people and no restrictions on outdoor gatherings. This is also within compliance of White House guidelines for Opening Up America Again.

On behalf of Albany County for Smart Energy Development, we demand that WAPA host at least one live, in-person hearing in Albany County as part of their review process for the Rail Tie Project. Gatherings of at least 400 people have been held in Albany in recent weeks. One such gathering held on Saturday, April 3rd was an auction at the Albany County Fairgrounds with at least 400 people in attendance.

We are at a time where public gathering can be held, while keeping the public safe. In appearance it seems as if WAPA is using the "Virtual Public Hearing" concept to squelch the ability for true public comment. We ask you to take action immediately by adding an additional live public meeting to this process.

Sincerely,



Paul Montoya
Albany County for Smart Energy Development

Cc - Senator John Barrasso
Senator Cynthia M. Lummis
US Representative Liz Cheney
Governor Mark Gordon

PO Box 2184, Laramie, WY 82073

info@ACSED.org

ACSED.org

0002-01

RESPONSE(S)

Western Area Power Administration

0002-01

WAPA responded to this comment at the time it was received.

COMMENT(S)

0003: Ronald and Irene Royer

Mr. Wieringa,

Having thoroughly read the rail tie proposal and research on the WAPA sight, I must say the projected impact by Next Gen has been greatly understated. Below please find my reservations.

0003-01

1. Next Gen states in ES6.1, that there will be significant impact to the characteristic landscape. It should be noted that the impact will be extremely detrimental and will not change even with the decommissioning of said windfarm. This majestic landscape will forever be tainted.

0003-02

2. In response to ES6.3, It should be noted that, at other Wyoming wind farms, specifically those already completed, that the ungulate population, (deer, elk and antelope) to this day, avoid the wind turbines and other installations of the wind farms. It didn't change when the project was complete the wildlife will forever be displaced. As to the assertion that it will change for the better after decommissioning of the turbines it remains to be seen. This will include migration routes presently in existence.

0003-03

3. The assertion that the avian population, including raptors song birds etc. will simply choose other nesting areas, again this is an assertion that the upheaval of their nesting areas shouldn't be a factor in stopping this abomination.
4. The Raptors that will be affected, that I have observed over the past 30 years will include but not be limited to, the Bald and Golden Eagle, Mountain and Western Bluebird, Mountain Plover, Tree and Violet Green Swallow, Horned Owl and indigenous Hawk varieties too numerous to name. If even one of these protected species is affected it is unacceptable.

0003-04

5. Since our land borders the area of turbine installation the assertion that 55db is an acceptable auditory noise pollution is again an attempt to white wash the actual intrusion. The statement was made that, "if, there is blasting it will be acceptable in the fact that it will happen during daytime hours, come now. At 250 ft. the blast of dynamite is 210db, enough to kill a human being let alone the dust pollution and vibration created, this is not supposition it is fact.

0003-05

6. With no stated setback, from residence or other significant features, this is absolutely unacceptable; I have seen nothing to show that the proposed placement of said turbines has changed from the initial proposal.
7. Finally the assertion that road access, deterioration and disturbance in traffic flow, will not be affected is ridiculous. I'm sure we have all seen the Semi trucks and trailers with wind turbine parts, the weight and number of axles alone will devastate monument road for all of its residential users.

RESPONSE(S)

Western Area Power Administration

0003-01 Comment and preference noted.

0003-02

As noted in the draft EIS, section 3.4.5.3, "Proposed Action," research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game. We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federally designated or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0003-03

Comment noted. Impacts to raptor and songbird populations are considered in section 3.5, "Avian and Bat Species."

0003-04

See page C-5 for response.

0003-05

See page C-5 for response.

COMMENT(S)

0003: Ronald and Irene Royer, continued

RESPONSE(S)

Western Area Power Administration

0003-04

The Albany County Wind Energy Siting Regulations limit noise from commercial wind energy facilities to 55 dBA as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015). While no NSAs fall within areas that would be expected to experience levels above 55 dBA, there are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between a non-participating private property and a participating property (Tetra Tech 2021c:Figure 2). Should this turbine layout ultimately be chosen for the Project, and if written landowner permission cannot be obtained in these locations, micrositing of turbines may be necessary in order to avoid exceeding the 55-dBA county threshold requirements in these locations.

0003-05

Comment noted. Section 3.13, “Transportation and Access,” considers impacts to traffic volume and flow and road conditions. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment.

COMMENT(S)

0003: Ronald and Irene Royer, continued

0003-06

In closing, the proposed sight is unacceptable due to the granite substrate, the existing potential destruction of natural rock formations and the probable effects to the water table and existing residential well contamination.

Sincerely,

Ronald and Irene Royer

39 Rubicon Rd.

Mailing address:

Ron and Irene Royer

603 E. 5th St.

Cheyenne, WY 82007

RESPONSE(S)

Western Area Power Administration

0003-06

Comment noted. Impacts to soil and rock formations are considered in section 3.7, "Geology, Soil, and Mineral Resources," while impacts to water resources are discussed in section 3.15, "Wetland and Water Resources."

COMMENT(S)

0004: Art Sigel

Mr Mark Wieringa
Rail Tie Wind Project
WAPA Headquarters
P O Box 281213
Lakewood CO 80228-8213

April 17, 2021

Dear Sir:

0004-01

I want to express my support for the proposed Rail Tie Wind Project. I have been a year round rancher/resident in Albany County for the past 15 years. I have witnessed the economic struggles our County leadership has had to cope with due to our poor tax base. I believe the Rail Tie project will provide a much needed financial boost to Albany County as a whole. As I consider the arguments around this Project I conclude that the value to the County far outweighs the objections.

0004-02

Thank you for this opportunity to comment.

Art Sigel

78 Hecht Creek Road
Laramie, WY 82070
sigel_a@yahoo.com



RESPONSE(S)

Western Area Power Administration

0004-01

Comment and preference noted.

0004-02

Comment and preference noted.

COMMENT(S)

0005: Judith and Robert Adams

From: Judith Adams <wyoadams@gmail.com>
Sent: Wednesday, April 7, 2021 8:27 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Albany county project

0005-01 We are in favor and excited about of this wonderful project coming to Albany County.

0005-02 & 0005-03 This project is the future of energy development for this county. This will bring jobs and future growth to Albany County. We have always been in favor of this project.

Judith and Robert Adams
Laramie, Wyoming

Sent from my iPad

RESPONSE(S)

Western Area Power Administration

0005-01 Comment and preference noted.

0005-02 & 0005-03 Comment noted.

COMMENT(S)

0006: Kevin Kilty

From: Heaviside <kkilty@ix.netcom.com>
Sent: Monday, May 3, 2021 9:59 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Concerns about this project

To: Western Area Power Administration
Date: May 3, 2021
Re: Rail Tie Project

My name is Kevin Kilty. I am a Laramie, Wyoming resident, recently retired from the University of Wyoming. I have deep reservations about the Rail Tie project. I will list six specific concerns here.

0006-01

First, I know I am not unique in this concern, but I spend half the year hiking in the Sherman Mountains and vicinity, and I hate the thought of my views being marred by these large machines. These will be even larger and more noticeable than those in the recently completed project on the Belvoir Ranch west of Cheyenne. I am sure many other people have made this same objection, but the impact on Wyoming scenery from this project and others is slowly becoming continuous along the I-80 corridor from the Nebraska border to Rawlins. I think it makes a poor visual introduction to the state.

0006-02

Second, I have been reading several sections of the EIS for this project along with a couple of sections of EIS from the old Hermosa project proposals. My second concern comes from the section of the EIS concerning impacts to wildlife. One thing I noticed was the very sketchy study of migratory birds. There is a bird sanctuary in North Park, Colorado. I have read a report of the inventory of birds who use that reserve from several years ago. One species of some importance mentioned is "Sand Hill Crane". I have seen large flocks of Sand Hill Cranes overhead between Horse Creek, Wyoming and Chugwater on occasion, and I imagine these birds pass over the Rail Tie area. A flock of cranes is a rather moving experience. What I have observed is their flocks do not travel like geese or ducks. They dawdle along in the air and I am very concerned about how they would interact with the exceptionally tall reach of turbine blades. Frankly, after reading the EIS I thought there wasn't much field work put into investigating anything about birds in general and migratory birds in particular.

RESPONSE(S)

Western Area Power Administration

0006-01

Comment noted. The impacts to visual aesthetics are considered in section 3.2, "Aesthetics and Visual Resources."

0006-02

Two years of preconstruction avian use surveys prior to wind energy development is standard for this region of the country per FWS Region 6 and *Land-Based Wind Energy Guidelines* (FWS 2012). Please see section 3.5, "Avian and Bat Species," for a summary of avian use studies conducted for the Project in 2019 and 2020.

COMMENT(S)

0006: Kevin Kilty, continued

Third, the acoustics report seems pretty cursory. The acoustics report from the Hermosa project contained more detail, and even it was too cursory. A great deal of the claims made in this report are hidden from our view behind the simulation “software”. We don’t know how this software works, so we are asked to simply trust its output. One of the assumptions stated in the EIS is that of using a “point source” model of sound. It appears to me that this is acceptable as long as the source really does approximate a point. The wind turbine generator (WTG), itself, fits this bill. On the other hand, the blades and their associated “swishing” sounds are generated over a very large planar area which does not approximate a point until one is very far away. Noise injected into the ground travels at much higher speed and doesn’t approximate this same point source. We have no way to evaluate many sources of noise because the study really only addresses generator noise. So, let me begin by discussing generator noise in some detail.

Noise declines with distance from the source no matter what medium it travels through. While the rate of decline is very case specific, sound energy density declines roughly 6dB per doubling of distance if the sound expands spherically from the source, and at 3dB per doubling if it expands cylindrically. The tendency to expand cylindrically through air and be heard at greater distances than one expects is a function of air temperature profile. Everyone, I am sure, has noticed their ability to hear trains far in the distance on cold mornings which are inaudible in the warmer parts of the day.

0006-03

Moreover, there are effects resulting from topography. The EIS claims to have used a digital elevation model from the USGS, but they do not tell us what resolution this model has. It may have such limited resolution that it is not pertinent to the problem of noise in the frequency bands typical of wind turbines; say, in the region of 40Hz where wavelength in air is about 8 meters, and would require detailed topography models to evaluate accurately. The report discusses adding an uncertainty of plus or minus 2dB to their noise estimates, but when a single reflection from a hard surface can produce a boost of 3dB, the 2dB margin seems small already. In fact, measurements have shown that a margin of 6 to 11 dB is required to cover transient sounds produced by wind turbines in places. To be clear, 11 dB is a factor of nearly 16 times in energy density.

Returning to the “point source” model, I mentioned a bit earlier that the blades of a wind turbine sweep out a large planar area very unlike a point source until one is far away. In addition the additive effect of a line of wind turbines pushes the inapplicability of the point source model even further away. Here the decline for a great distance away is at only about 3dB per doubling of distance.

Rail Tie is largely planned on hard crystalline bedrock or competent sedimentary rock which conveys sounds differently than does air, and even differently than sediments out in the plains. One thing a person can count on is that because of the much higher speed of sound in rock, the “point” in the point source model is larger than the point source in air -- that is, one has to be further from the base of the wind turbine before the point source model produces accurate expectations. The transmission of sound is

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0006: Kevin Kilty, continued

- 0006-03, continued also dependent on layering and juxtaposition of rock units against one another. Sound traveling through rock interacts with buildings differently than sound in air. While a home is isolated greatly from sound traveling through air, it is nearly defenseless to sound traveling through rock which can enter through its foundation.
- 0006-04 With regard to infrasound, I see that this study more or less ignores the topic. The earlier EIS for the “Hermosa” project referred back to a report and measurements made on what they label a “modern wind farm”. However, a dedicated search backward through references indicates this report is from 1996. While this may have been a modern facility in 1996, it is not a modern wind farm now, for the wind turbines typically in operation then are unlike those in operation now. They were about one-eighth the capacity. In fact the turbines considered for the Hermosa proposal were only about one-third the capacity of those considered here. I am not convinced that despite all the computer modeling, and reference to studies to assure people that wind turbine farms are quiet, we have any way to credibly and independently evaluate these claims without significant effort.
- 0006-05 There are measurements showing features in the spectrum of noise from wind turbines below the limit of hearing generated by wind turbines, which will be felt rather than heard, but which will exhibit some of the sensation of being heard. I have some experience with seismic noises, both in earthquakes and in exploration seismic work, in which there is confusion over whether the sensation is a sound or a feeling, but its occurrence is obvious, odd and surprising. The dBA-weighting scheme used throughout the EIS is inadequate to represent these vibrations.
- 0006-06 In the letter I sent to the State Lands Board last year I specifically mention that wind turbine sounds, within and below the frequency threshold of hearing, would travel through the ground. In the area of the wind farm some of the ground in very hard rock that might convey sounds long distances. I mentioned a small (Mag 3.8) earthquake at Easterbrook, Wyoming which was felt in Golden, Colorado back in 1984. The crystalline rocks and competent sediments of the Front Range convey sound and vibration north-south very well. None of this is addressed in the EIS.
- 0006-07 Fourth, there seems to be no discussion of decommissioning, and this includes any efforts to repower the machines well before final decommissioning, in the future or who must bear the cost. However, just about the least appropriate means of decommissioning would be to bury anything on site. There simply is not enough soil available, and the reclamation would be difficult.
- 0006-08 Fifth, the portion of the EIS dealing with groundwater points out a number of concerns and is deficient in some regards. I think its deficiencies stem from there being no hydrologist involved in the field studies, which appears to have been handled solely by biologists.
- To say that the area receives 48 inches of snowfall on average does not adequately explain the complexity of natural irrigation in the area. The snow is blown by wind into certain areas and cleared from others. When this melts the water involved is distributed throughout the region in surface streams and also through fracture sets.

RESPONSE(S)

Western Area Power Administration

- 0006-03 Noise impacts from the Rail Tie Wind Project were quantified within the Acoustical Assessment Technical Report dated January 2021. In this technical report, noise from the operation of the wind turbines were modeled as “idealized” point sources, as described in International Organization for Standardization (ISO) 9613-2, “Attenuation of Sound during Propagation Outdoors” (ISO 1996). As stated in the Acoustical Assessment Technical Report, “The engineering methods specified in this standard consist of full (1/1) octave band algorithms that incorporate geometric spreading due to wave divergence, reflection from surfaces, atmospheric absorption, screening by topography and obstacles, ground effects, source directivity, heights of both sources and noise sensitive areas, seasonal foliage effects, and meteorological conditions. Operational broadband sound pressure levels were calculated assuming that all wind turbine generators are operating continuously and concurrently at the maximum manufacturer-rated sound level. The sound energy was then summed to determine the equivalent continuous A-weighted downwind sound pressure level at a given point of reception.” The acoustic modeling analysis used the maximum 1/3 octave band sound power level data provided by the manufacturer based on the International Electrotechnical Commission standard 61400-11 Ed.3. In addition, a number of conservative assumptions were incorporated into the acoustic modeling analysis such as including a ground absorption factor of 0.5 for the surrounding area and 0 near the turbines and disregarding sound attenuation through foliage as well as diffraction around and over existing anthropogenic structures. In addition, the noise study presents a site plan that conforms to the noise standards and setback standards to mitigate noise impact to non-participating property owners. Noise will not exceed 55 dBA at a nonparticipating property line (see Application for Commercial Wind Energy Conversion System Permit – Rail Tie Wind Project, pg. 32, Figure 2, Preliminary Site Plan, and Appendix I: Acoustical Assessment Technical Report).
- 0006-04 See page C-12 for response.
- 0006-05 See page C-13 for response.
- 0006-06 See page C-13 for response.
- 0006-07 See page C-13 for response.

COMMENT(S)

0006: Kevin Kilty, continued

RESPONSE(S)

Western Area Power Administration

0006-04

Infrasound is generated by various machines and structures (atmospheric disturbances, wind, cars, airplanes), not only wind turbines, and exist everywhere. Wind turbine sound consists of audible, broadband aerodynamic sound, but also infrasound, which is considered inaudible. The dominant infrasound frequency (<20 Hz) from a wind turbine depends on operational conditions and the type of the turbine. When operating at rated power, the source of this 0.7–1.5 Hz frequency is generally considered to be the blade-tower interaction. Wind turbine infrasound levels far lower than those experienced in other everyday activities such as traveling in a vehicle, being by the ocean, or being out in the wind.

COMMENT(S)

0006: Kevin Kilty, continued

RESPONSE(S)

Western Area Power Administration

0006-05 When evaluating noise, the draft EIS considered both dBA and Hertz (Hz). The nearest NSA is located 1,880 feet from WTG locations and is a participating landowner. The acoustic modeling analysis used the maximum 1/3 octave band sound power level data provided by the manufacturer based on the IEC 61400-11 Ed.3. In addition, a number of conservative assumptions were incorporated into the acoustic modeling analysis such as including a ground absorption factor of 0.5 for the surrounding area and 0 near the turbines and disregarding sound attenuation through foliage as well as diffraction around and over existing anthropogenic structures. The operational noise impacts analyzed sound power levels from 63 Hz to 8k Hz. The low-frequency (16 Hz, 31.5 Hz, 63 Hz) noise contributions from the wind farm would not be expected to cause impacts to NSAs at that distance. In addition, the ultra low frequency (< 16 Hz) and seismic noise would not be expected to cause impact to NSAs located 1,880 feet from WTG locations.

The Albany County Wind Energy Siting Regulations limit noise from commercial wind energy facilities to 55 dBA, as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015). While no NSAs fall within areas that would be expected to experience levels above 55 dBA, there are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between a non-participating private property and a participating property (Tetra Tech 2021c:Figure 2). Should this turbine layout ultimately be chosen for the Project, and if written landowner permission cannot be obtained in these locations, micrositing of turbines may be necessary in order to avoid exceeding the 55-dBA county threshold requirements in these locations.

0006-06 See response to comment 006-05.

0006-07 Please see section 2.2.5, “Decommissioning,” for a detailed discussion of decommissioning. ConnectGen has developed decommissioning and reclamation plans in support of Albany County and ISC permit applications and in compliance with Wyoming Industrial Sighting Application and WYDEQ regulations and the Albany County Zoning Resolution.

COMMENT(S)

0006: Kevin Kilty, continued

0006-08, continued
 Many plants derive probably most of their water needs by tapping the fracture sets. A person can see a bit of this complexity in the road cuts and margins of I-80 nearby. The plants growing in the scars left by construction of I-80 show the fracture sets supplying them with water clearly.

This goes on throughout the area covered by the EIS. The report itself refers to this only in the section dealing with springs in section 4.2. The full statements is this:

“Springs occur where groundwater discharges to the surface. Mazor (1990) reported that the fractured zones in the Casper Aquifer tend to have large transmissivities (the volume of water flowing through an aquifer). This hydraulic conductivity results in a local lowering of groundwater heads, and groundwater flows into the fault zones. Groundwater then moves upward through the fault planes and it is expressed as surface springs. Springs with substantial flow can serve as the headwaters for streams and rivers and can provide important or unique habitat conditions for aquatic species and other wildlife.”

There seems to be no recognition that this goes on throughout the study area and is a source of water supply for plants even when there is no surface expression such as a spring. High transmissivity (the report, by the way, misdefines this concept) actually refers to an ability of the ground to pass a unit volume of water per unit time with a certain hydraulic gradient -- large transmissivity means a large flow of water propelled by a small hydraulic gradient. This has some consequences for construction of foundations.

0006-09
 First, the amount of decline of the underground water surface is dependent on the transmissivity (T) and the storage constant (S) of the ground in the combination (T/S). The report is deficient for not mentioning this.

In the Casper formation where the report identifies a large transmissivity (contributed by fractures), the storage constant is also large in places because it is contributed by fractures, pores and voids. This leads one to suspect reasonable volumes of water can be produced per unit time by a well without impacting groundwater levels at great distances from the well. However, in crystalline rock a high transmissivity usually results from fractures, but there is no porosity or void spaces to augment the storage of water. Thus, while water will flow readily to a well, the drawdown from any sizable production of water from that well will affect groundwater levels at great distances along the fractures. This has ramifications for construction.

0006-10
 The concrete batch plant will require a nearby source of water. The EIS suggests the total demand for water over the eighteen month long construction phase, for concrete and dust suppression, will be no more than 200 acre-feet, which is to say about sixty-six million gallons, and that this might be developed from local wells. I'd say not if those wells are placed in the crystalline bedrock, and perhaps not even in some areas where bedrock is composed of competent sediments. Wells for households and stock watering do not produce comparable amounts of water and are no guide to the problem.

RESPONSE(S)

Western Area Power Administration

0006-08
 The facilities proposed for this Project are not anticipated to disturb the current snow distribution patterns due to the low density and tall, thin nature of aboveground structures. Very localized changes could occur at the O&M building, substations, the switchyard, and any necessary new road cuts. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. There are five springs within the Project Area, one is located within the siting corridors. Generally, ConnectGen is siting and designing the Project to avoid or minimize adverse effects on water resources, and has committed to marking them in the field to facilitate avoidance where possible. Table 2-6 details the measures ConnectGen will take to protect water bodies and aquatic resources during the life of the Project.

0006-09
 ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project Area—to inform design and construction. This information has been considered for the final EIS and added to WAPA’s Project website. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0006-10
 Comment noted. Please refer to section 3.15.5.3, “Proposed Action,” which states, “ConnectGen would consult with the WYSEO prior to finalizing groundwater use sources, including the drilling of any new groundwater wells (WQ-14), to confirm that no new depletions would result from Project activities.”

COMMENT(S)

0006: Kevin Kilty, continued

0006-11 Next, there is the implication for dewatering of foundations. Foundations cannot be constructed under water, and so there will have to be dewatering of the excavations for the foundations. Whether this dewatering is done before excavation or afterward does not matter. The fact is that water has to be pumped from the ground throughout the construction period, including the period required to cure concrete, and discharged in surface storage or ravines. If there is a poor combination of transmissivity and storage coefficient then the dewatering will affect a large area. It may very well adversely impact water supplies for trees and shrubs, and perhaps springs, ponds, and wells too, at large distances away. If there is high transmissivity and adequate storage the dewatering will lead to very large volumes of water removed from the ground and retained in temporary surface storage or put into ravines. There is no way to even estimate at present the volumes involved or the potential impacts because the EIS is deficient in addressing this subject.

My sixth concern is not with the EIS per se, but in the impact the use of power generation at Rail Tie may have on the electrical grid. In the Federal register from 2019 there is this claim made by WAPA:

“Preliminary studies indicate that the power system can accommodate the proposed interconnection without negatively affecting system reliability or power deliveries to existing customers. The transmission system may require network and/or transmission system upgrades as determined in the final studies.”

0006-12 So far I have seen nothing about these promised studies, and don't even know what the preliminary studies addressed. WAPA intends to use power generated in this project to replace power from the Hayden generating station. This means that non-dispatchable power is replacing dispatchable power. If the recent problems in Texas, Germany, California, and the State of South Australia tell us anything, it is that a grid having too much non-dispatchable power is undesirable in the extreme. Now, the interesting question is how much is too much? WAPA claims to have done some preliminary analysis in the above statement, which I presume would address just these issues, and concluded that they envisage no problem. Yet there are no details available about this analysis, and no way to independently review this claim. I would expect to see several reasonable scenarios by WAPA that demonstrate what their dispatchable reserve margin is in these cases.

0006-13 There are eight (8) utilities, municipalities, and irrigation districts in Wyoming which WAPA supplies. I have no idea how well these people are protected against outages and unforeseen price swings from spot market purchases if such are necessary. I don't know that they have a way to evaluate such. I do know that in the cases of Germany, California, and South Australia that the more “free wind energy” they added to their grids, the more expensive electrical energy became for the consumer; in the case of Texas last February, some power bills were simply stunning. I mean hundreds of dollars per kilowatt hour, rather than the typical twelve cents per kilowatt hour.

In summary, I think the EIS leaves a lot of questions regarding environmental impacts unanswered; and I have concerns beyond environmental impacts regarding the economic impacts of replacing energy from dispatchable sources with energy from

RESPONSE(S)

Western Area Power Administration

0006-11 Please refer to section 3.15.1.2, “State Regulations,” which provides reference to requirements for a construction dewatering permit.

0006-12 WAPA completed a System Impact Study that details the requirements for the requested interconnection and associated system upgrades (WAPA 2020a). WAPA’s purpose and need is to consider and respond to the request for an interconnection agreement in accordance with the agency’s Tariff and the Federal Power Act, as amended (see section 1.1, “Western Area Power Administration’s Purpose, Need, and Decision”).

0006-13 Comment noted.

COMMENT(S)

0006: Kevin Kilty, continued

0006-14 non-dispatchable sources. Frankly I think the area proposed is a poor choice for a wind turbine farm like that envisaged at present for Rail Tie.

Thank you for your time and consideration.

Sincerely,
Kevin Kilty
Laramie, Wyoming

RESPONSE(S)

Western Area Power Administration

0006-14 Comment and preference noted.

COMMENT(S)

0007: Karen and Leland Schertz

From: Leland Schertz <klshertz@yahoo.com>

Sent: Friday, April 16, 2021 1:24 PM

To: Wieringa, Mark <Wieringa@WAPA.GOV>

Subject: [EXTERNAL] Concerns for the implimentation of the Rail Tie Project in South Albany County,Wy

I am submitting two major concerns about approving the Rail Tie Wind Turbine Project:

0007-01

1. First concern is the disturbance of the granite in this land from the installation of these huge towers. The bases will break thru granite that is part of a delicate balance that makes up the Casper Aquafer. We hit water for our well at 55'. Others have hit water within a foot of the surface. This kind of massive disturbance from so many towers could definitely change water flow and quality to well in this county.

0007-02

Those of us who have been established citizens and depend on this water for our livestock, crops and personal drinking water don't support the risk the County would be taking by approving this Rail Tie Wind Project.

0007-03

2. Second concern is the 60 miles of service roads this project is proposing. This land here in Albany County is very fragile. It is like Tundra. Once disturbed it will never come back to what it was. Even with restorative seeding. We have owned here since 1994 and can still see the tire tracks from the High West power truck that put in our power poles. An area of such natural beauty and the gateway to our State should be protected not chopped up by service roads.

Respectfully submitted: Karen and Leland Schertz
99 Old Wagon Rd,
Tie Siding, Rd 82084

RESPONSE(S)

Western Area Power Administration

0007-01

In section 3.15.5.3, "Proposed Action," the draft EIS explains that belowgrade-disturbing activities, such as disturbance for turbine foundations and newly drilled wells, could alter groundwater connectivity; however, these activities are not anticipated to increase groundwater connectivity because Wyoming groundwater data indicate that the aquifers do not overlap with the siting corridors where Project activities would take place. Belowgrade-disturbing activities will therefore be within single aquifer areas and will not modify connectivity.

0007-02

Comment and preference noted.

0007-03

As described in section 3.14.6, "Vegetation Conclusion," reclamation is expected to be successful in restoring native vegetation cover based on the 37 primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMs, detailed in section 2.2.6, "Environmental Protection Measures."

COMMENT(S)

0008: Paul Matosky

From: Paul & Ruthie <paulruthiem@aol.com>
Sent: Friday, April 30, 2021 9:51 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] ConnectGen Rail Tie Project

Mr. Wieringa,

0008-05 STOP this disaster before it's too late and resident's have to live with it's invasive destruction.

0008-04 Projects of this ilk *are not benign*...affect is greater than an EIS procedural report. Wildlife, etc. is one thing, but with this sort of industrial project in a rural area, the affect on people is considerably more important.

0008-02 Those residing next to or near this project continue to be massively opposed *beyond measure*. Yet for more than a year - *at every turn* - we have been *summarily ignored* by those involved in "the process" without recourse. Ours was not simple opposition...it was and continues to be a concerted effort to assist county officials in rethinking 10 year out-of-date regulations for such projects, yet Rail Tie continues unabated.

0008-03 This time last year many residents presented to you *their opposition and grave concerns*...I remind you that *except for participants, non-residents, and outside organizations, NO ONE* living here supports this project, especially one consisting of an invasion of massive turbines whapping away day and night, with flashing lights and noise wrecking our landscape and quiet, and ultimately, our property values.

One only has to look at NextEra's Roundhouse...the adjacent subdivision to the project is ruined despite given reassurances that "it won't be that close".

This was a lie...as confirmed.

Yet when those residents voiced concerns and opposition they were given the run-around by officials, people who were *supposed to protect* their constituents interests, not the developers.

Now look at that result. What was done to those residents *by every official in the project pipeline* is disgusting and reprehensible.

0008-06 To be very clear...the people at the WY/CO border, from Boulder Ridge all the way to Ames Monument surrounding the 26,000 (!!!) acres of land, *do not* want our property values and rural quiet way of life ruined by an out-of-state company's industrial wind project.

But once "up" it's too late...for us. No one else, apparently, cares.

End this now.

Good day,

Paul Matosky
 Virginia Dale, CO (at the border)

RESPONSE(S)

Western Area Power Administration

0008-05 Comment and preference noted.

0008-04 Comment and preference noted.

0008-02 WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang, Wyoming Tribune Eagle, The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, "Public Involvement and Scoping," of the EIS.

0008-03 Comment noted.

0008-06 Comment and preference noted.

COMMENT(S)

0009: Janet L. Webster

April 28, 2021

To: Albany County Commissioners, Planners and public record

From: Janet L. Webster, The Buttes Homeowner, 23 Desperado Buttes Trace, Laramie, WY 82070

Re: Rail Tie Wind Project Impact Statement

I am writing in fervent hope that the various findings from the Environmental Impact Study will not be glossed over in the decision-making process for the Rail Tie Wind Farm Project. The impacts that most concern me and their reasons are as follows:

- 0009-10 • Viewshed – According to the ratings for the Visual Study of the area, as a resident of The Buttes, **the Viewer Sensitivity places our home at a high sensitivity and the maximum height scenario of the turbine is rated as moderate.** These are just words to the reader, but the impact to those of us who will constantly be visually assaulted by these industrial towers is unacceptable. We moved to this area for the glorious vistas and natural beauty of this part of Wyoming, the solitude and quiet, the dark night skies that share the milky way and shooting stars, plus the ability to commune with nature, and all it offers. If approved, this project will ruin that forever.
- 0009-11 • Groundwater/Aquifers – We in Southeastern Wyoming rely on the Casper Aquifer for our water. Looking at the geology of this formation and how the formation rises to very near the surface of the area where the Rail Tie Wind Project is proposed, is of great concern to those of us who live here. **As reported in the EIS, the Project Area is in an area with high aquifer sensitivity.** The ranchers nearby need water for their livestock, we humans need it to drink and to bathe. Huge holes will be dug for the bases of these giant towers, the concrete must be poured into dry holes. Pumping of the water from this area with such a shallow water table will most certainly impact those of us who need this water for our subsistence and so many of us have been here long before this project was proposed! Contamination of the ground water is also of concern. The surface springs which are located throughout this area are important or unique habitat conditions for aquatic species and other wildlife... **all will most certainly be impacted with the disturbance which will be thrust upon this aquifer system.**
- 0009-07 • Transportation/State Highways – How many lives lost will it take due to accidents on Route 287 as a result of increased truck traffic? Shouldn't this too be part of the EIS? While the EIS addresses many issues pertinent to the Rail Tie Wind Project, I wonder why human life was not also addressed? **This 2-lane highway is already one of Wyoming's most dangerous roads to travel.** Every resident of The Buttes can tell stories of close calls while leaving or returning to our homes! Add the amount of increased traffic (imagine the traffic back-ups behind those slow-moving trucks hauling each blade) and it will be a nightmare to try to travel in/out of our entry way.
- 0009-08 & 0009-09 • Golden Eagle and Raptors – The disturbance of the nesting habitat of the raptors and eagles has an altruistic impact for those of us who care about our flora and fauna in this area. Because of the rock outcroppings and large cliffs in this portion of our county, we are blessed with living among these magnificent birds. **The EIS have documented many nests active with eggs, adults in incubating position, and chicks.** There are also many inactive nests at the time of the survey. Documented nests included other species of birds such as ferruginous hawks, red-tailed hawk, Canada goose, common raven, Swainson's hawk, prairie falcon and great horned owl. There is no dollar amount that can be placed on this avian gift, and the intrusion of industry will surely uproot **their ecosystem.** Of course, the inevitability of slain birds from the massive arms of the towers is a whole different issue on the impact this project will make. The cost of building these wind towers to the bird population of southeastern Albany County is sadly immeasurable... just another adverse impact on nature for future generations.
- 0009-12 • Golden Eagle and Raptors – The disturbance of the nesting habitat of the raptors and eagles has an altruistic impact for those of us who care about our flora and fauna in this area. Because of the rock outcroppings and large cliffs in this portion of our county, we are blessed with living among these magnificent birds. **The EIS have documented many nests active with eggs, adults in incubating position, and chicks.** There are also many inactive nests at the time of the survey. Documented nests included other species of birds such as ferruginous hawks, red-tailed hawk, Canada goose, common raven, Swainson's hawk, prairie falcon and great horned owl. There is no dollar amount that can be placed on this avian gift, and the intrusion of industry will surely uproot **their ecosystem.** Of course, the inevitability of slain birds from the massive arms of the towers is a whole different issue on the impact this project will make. The cost of building these wind towers to the bird population of southeastern Albany County is sadly immeasurable... just another adverse impact on nature for future generations.
- 0009-05 • Golden Eagle and Raptors – The disturbance of the nesting habitat of the raptors and eagles has an altruistic impact for those of us who care about our flora and fauna in this area. Because of the rock outcroppings and large cliffs in this portion of our county, we are blessed with living among these magnificent birds. **The EIS have documented many nests active with eggs, adults in incubating position, and chicks.** There are also many inactive nests at the time of the survey. Documented nests included other species of birds such as ferruginous hawks, red-tailed hawk, Canada goose, common raven, Swainson's hawk, prairie falcon and great horned owl. There is no dollar amount that can be placed on this avian gift, and the intrusion of industry will surely uproot **their ecosystem.** Of course, the inevitability of slain birds from the massive arms of the towers is a whole different issue on the impact this project will make. The cost of building these wind towers to the bird population of southeastern Albany County is sadly immeasurable... just another adverse impact on nature for future generations.
- 0009-06 • Power to our communities is essential to our life, but our stewardship to this planet should be a priority. As the caretakers of this earth, we need to search for less invasive power sources. Our area is plenty windy, but we also have brilliant sunshine nearly every day of the year. Could this not be harnessed at lesser cost to our environment and its inhabitants? Hopefully we can listen to our scientists and experts in regard to the environment and be prudent in our selection of power source.

RESPONSE(S)

Western Area Power Administration

- 0009-10 • Comment and preference noted.
Section 3.15, “Wetland and Water Resources,” considers impacts to groundwater resources from Project construction. Specifically, EIS section 3.15.5.3, “Issue Statement #4,” explains that belowgrade-disturbing activities, such as disturbance for turbine foundations, is not anticipated to increase groundwater connectivity because Wyoming groundwater data indicate that the aquifer does not overlap the siting corridors in which Project activities would take place. Belowgrade-disturbing activities would therefore be within single aquifer areas and would not modify connectivity. In addition, ConnectGen has committed to avoiding new depletions as a result of Project activities, and no additional depletions of local groundwater resources or impacts to water quality as a result of Project activities are anticipated.
- 0009-11 • See response to comment 0009-11.
Section 3.15, “Wetland and Water Resources,” considers impacts to water quality, including groundwater quality, from Project construction. As described in section 3.15.5.3, “Issue Statement #6,” and section 2.2.6, “Environmental Protection Measures,” ConnectGen has committed to measures that would protect water quality and contamination of surface and groundwater resources. There are five springs within the Project area, one is located within the siting corridors. Generally, ConnectGen is siting and designing the Project to avoid or minimize adverse effects on water resources, and has committed to marking them in the field to facilitate avoidance where possible. Table 2-6 details the measures ConnectGen will take to protect water bodies and aquatic resources during the life of the Project.
- 0009-07 • See page C-20 for response.
- 0009-08 & 0009-09 • Comment noted. The impacts to avian nesting are considered in section 3.5, “Avian and Bat Species.”
- 0009-04 • Comment noted.
- 0009-05 • See page C-21 for response.

COMMENT(S)

0009: Janet L. Webster, continued

RESPONSE(S)

Western Area Power Administration

0009-04

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment.

COMMENT(S)

0009: Janet L. Webster, continued

RESPONSE(S)

Western Area Power Administration

0009-06

As described in the Executive Summary, section ES 4, “Western Area Power Administration’s Proposed Federal Action,” and section ES 4.4, “Proposed Federal Action Alternative Considerations,” WAPA’s role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency’s Tariff and the Federal Power Act. WAPA’s decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA–managed transmission system. Thus, although ConnectGen’s Project is considered a connected action to WAPA’s Federal decision of granting an interconnection to the agency’s transmission system, WAPA lacks the authority to site ConnectGen’s Project at a different location, to change the Project’s generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA’s EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0010: Terri Johnston

From: Terri Johnston <terojo.27@gmail.com>
Sent: Thursday, May 6, 2021 10:37 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: sueibarra307@gmail.com; pgosar@co.albany.sw.us; hrichardson@co.albany.wy.us
Subject: [EXTERNAL] An urgent comment to save our Highway 287 southern corridor and protect the gateway to Albany County.

Please note the attached comment. This has been revised and cut from an Op Ed published in the Laramie Boomerang April 25, 2021.

Terri J. Johnston
 1251 North 21st Street, D29
 Laramie, WY 82072
 307-460-3820
terojo.4@gmail.com (cell phone)

Why should we risk damage to long-term, natural assets for short-term government funding?

As the Albany County Commissioners and WAPA begin studying the Rail Tie application from Connect Gen, I want to encourage them, as well as many Albany County residents to view the entire area that Connect Gen is proposing for their 600+-ft wind turbines **as a long-term and valuable asset (in monetary ways and psychological ways)**. These natural assets, **our diverse landscapes and wildlife** have more potential for the future than Klaus Halbsgut's editorial recognizes in the Sunday, 4/4 Laramie Boomerang. Mr. Halbsgut's view appears to be all short-term practicality in the form of funding for our county government. He uses fear of layoffs, which is frightening, but I believe in my gut that this particular piece of Albany County's landscape will attract jobs and small businesses if we are patient and careful. Approving Connect Gen will make this gateway to Albany County an industrial area for an entire generation! This will show us as very poor stewards of our natural assets.

0010-06

0010-07

0010-01

0010-02

Connect Gen's proposal **is too massive in breadth for this site ecologically, is destructive to our appreciation of nature, damages our psychological peace and possibly health for the residents' in this area as well as the wildlife activity in this area. The individual 600+-foot turbines are a visual and possible sound nightmare, which has not even been well researched nationally.** There is proof that antelope and deer will not tolerate the low-level decibels of constant sound that the turbines make (Nature Conservancy's observation of the Cheyenne wind turbine plain along I-80 from a presentation at the February, 2021 meeting of those concerned about Connect Gen's proposal). We don't control wildlife; they go where they can survive as safely and pleasantly as possible. So if this proposal is adopted, be ready! The wildlife **will** go elsewhere—this includes raptors and small predators. The natural balance of this area will be severely disturbed.

RESPONSE(S)

Western Area Power Administration

0010-06

Comment noted.

0010-07

The EIS considers impacts to wildlife (section 3.4, "Aquatic and Terrestrial Wildlife and Special-Status Species," and section 3.5, "Avian and Bat Species"), vegetation (section 3.14, "Vegetation"), visual resources (section 3.2, "Aesthetics and Visual Resources"), and public health and safety (section 3.10, "Public Health and Safety"). As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to the agency's transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

0010-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.2, "Aesthetics and Visual Resources," considers impacts to visual resources from the Project, and section 3.10, "Public Health and Safety," considers impacts from noise during Project construction and operations.

0010-02

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

COMMENT(S)

0010: Terri Johnston, continued

I attended the February meeting for those against the Rail Tie Wind Proposal. At the end of the meeting, a gentleman who has lived in many other states and communities prior to moving to Laramie offered an opinion and idea that hit me hard. He had discovered that communities that protect their long-term assets are much more vibrant and enduring, as well as pleasant to visit and live in. Humanity needs space and peace just as our wildlife do. Note how the foothills of all the cities along the Colorado front range from Ft. Collins to Colorado Springs have been sold out for money. Are we in danger of selling out this area and maybe becoming another burrough of suburban Ft. Collins?

0010-08 This area is the gateway to Albany County from the south. If we leave as much of this gateway in its natural state as we can, we will gain businesses and tourism. I would much rather try to control tourist-driven small business opportunities than massive industrial exploitation and long-term destruction of our gateway, the 287 corridor. Connect Gen doesn't care about our diverse landscapes; they see roads, turbines, electrical supplies, and money for other states! I am selfish: I want Wyoming small businesses and healthy Laramie-based people working and living in our beautiful vistas. I want my state and county to protect our natural assets as a **first priority**.

0010-09 Our gateway will last as long into the future as we choose. We could be the last place off I-25 that has spacious landscapes and antelope, deer, and elk surviving in these landscapes! Of course, trophy homes can disturb that, but those homes also bring in families, which should be preferred, rather than giant industrial machines that make subtle but continuous noise to endure and huge truck traffic, dust, and noise to set up and maintain. With the Colorado front range such an urban and crowded money strip, Albany County can provide a pleasant surprise!

0010-05 I plead with the County Commissioners and WAPA to at least cut back Connect Gen's numbers of turbines significantly—120 is still too many. I believe in private property, and I understand ranchers in this area may choose leasing parts of their land to Connect Gen for wind turbines on their

0010-03 property during hard times. They will be choosing to live with the possible sleep disturbances and irritability and anxiety the low decimal noise can cause per European research after many years of

0010-04 living around wind turbines (Denmark and the Netherlands). They also will be choosing to lose wildlife activity on their ranches including raptors and small predators. Natural balance will not be present. Will mice and insects take over ranch buildings? There are cases of this already (February 2021 meeting for those against Connect Gen's proposal). Research in the U.S. is not conclusive yet (maybe suspiciously so).

I sense the State Board that originally approved this proposal without the Wyoming Game and Fish input, only sees government funding. Bureaucracies become larger, more complicated, less effective, and self-serving more quickly than small businesses. I would rather be patient and keep

RESPONSE(S)

Western Area Power Administration

0010-08 Comment and preference noted.

0010-09 Comment noted.

0010-05 As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

0010-03 See page C-24 for response.

0010-04 WAPA did not participate in the meeting referenced in the comment. The issue of mice and insects taking over ranch buildings was not explicitly addressed in the EIS nor is WAPA aware of peer-reviewed literature that supports this possibility. Impacts to wildlife are considered in section 3.4, "Aquatic and Terrestrial Wildlife and Special-Status Species," and impacts to raptors are considered in section 3.5, "Avian and Bat Species." The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

COMMENT(S)

0010: Terri Johnston, continued

RESPONSE(S)

Western Area Power Administration

0010-03

The nearest NSA is located 1,880 feet from the WTG, is a participating landowner, and was modeled within the 50–55 dBA range, which falls within the existing 45–53 dBA ambient noise level. The next three closest NSAs were modeled within the 45–50 dBA range, which also fall within the existing 45–53 dBA ambient noise level. This sound level can be characterized as light traffic at a distance of 100 feet away. In 1974, the EPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. In this publication, the EPA evaluated the effects of environmental noise with respect to health and safety and determined an Day Evening Night Sound Level (Lden) of 55 dBA (equivalent to a continuous noise level of 48.6 dBA) to be the maximum sound level that will not adversely affect public health and welfare by interfering with speech or other activities in outdoor areas. The World Health Organization (WHO) published new guidelines in 2018. These guidelines provide recommendations for limiting noise from wind turbines. The guidelines recommend reducing noise levels from wind turbines to below 45 dB Lden. The Lden metric is a 24-hour average which add 5 dB weighting to the evening period and 10 dB weighting for the nighttime period. WHO states, “as wind turbine noise above this level is associated with adverse health effects.” As indicated in the January 2021 acoustical assessment completed for the refined Project design, at the structures of non-participating residences, the Project noise levels will be at or below the WHO recommended guideline of 45 dB Lden.

COMMENT(S)

0010: Terri Johnston, continued

Albany County poorer until more businesses that respect the natural assets we have, discover what a wonderful place Albany County can be.

We don't need to let Connect Gen run rough-shod over our assets. These assets may never be protected if we start opening the door to opportunistic large entities that wave money at us in hard times. Be VERY careful, take your time, and think in terms of protecting our long-term, natural assets. It has taken millions of years for this diverse, natural area to be created with its rolling prairie framed by forested mountains and rocky bluffs, as well as the red buttes. This area should be protected to keep the abundant antelope, deer, and elk, raptor, and small predator populations safe and in a natural habitat!

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0011: Mike Massie

From: MIKE MASSIE <mamassie@msn.com>
Sent: Tuesday, May 4, 2021 2:17 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] ConnectGen Albany County Project

To the Western Area Power Administration:

0011-01 After reading the Rail Tie Wind Project Draft EIS, I write in support of ConnectGen Albany
 0011-03 County's interconnection request to the WAPA. The proposed wind turbine project would help meet the region's demands for electricity as well as further the goal of providing more energy from carbon-neutral, renewable resources.

0011-04 Further, it appears WAPA's current transmission line has the capacity to accommodate the power that ConnectGen would provide and could do so without any adverse effects to the system or existing customers. I assume the company would pay for the costs of upgrades to the system that the interconnection would require if either of the two WAPA studies identify any.

0011-05 I concur with the various analyses that the Draft EIS offers, particularly the determinations of no significant impacts to health, safety, air quality, wildlife, and the overall populations of birds and bats. As ConnectGen notes, it will develop agreements with various agencies, including the US Fish and Wildlife Service and the Wyoming Game and Fish Department, to minimize the loss of individual birds and bats, as well as eagle habitat. Besides generating additional renewable energy for the Western grid, the project benefits include some much-needed tax revenue for our county government and employment of an average monthly workforce of 120 during construction and 23 permanent workers.

0011-07 With some reservations, I also agree with the EIS' conclusions regarding impacts to aesthetic, visual and cultural resources. There is little doubt that up to 120 wind turbines will substantially alter the area's visual landscape even after the company mitigates the impacts through setbacks, positioning, and paint. However, I don't think that this should be a factor in WAPA's consideration of ConnectGen's request.

Changes to the area's landscape have been widespread and constant since the arrival of the railroad more than 150 years ago, and ConnectGen's proposed project will be no different. There do not appear to be any federal regulations that protect visual landscapes outside of Class 1 airsheds and vistas surrounding some national parks. Indeed, I doubt that any wind farm could be built anywhere in the West if one of the conditions is that no one's view be

RESPONSE(S)

Western Area Power Administration

0011-01 Comment and preference noted.

0011-03 Comment noted.

0011-04 Comment noted.

0011-05 Comment noted.

0011-06 Comment noted.

0011-07 Comment and preference noted.

COMMENT(S)

0011: Mike Massie, continued

affected. I can understand why a homeowner doesn't want to lose something as valued as a favorite view, but it seems that the appropriate means of forestalling the development of wind farms isn't through the federal permitting process but through private conservation easements in which private landowners are paid not to develop their lands.

Likewise, the study's conclusion that the ConnectGen project will visually impact the Ames Monument is true, but only to a certain degree. The Union Pacific Railroad had the monument built on the highest spot on the transcontinental railroad, next to the tracks and across from the nearby railroad town of Sherman. This original physical setting was soon compromised when the tracks were moved quite a bit to the south and Sherman was abandoned. It was further affected with the nearby construction of modern highways (The Lincoln Highway and then I-80). And the historical setting is further compromised daily when visitors park their cars, trucks, and RVs next to the monument to visit it.

Consequently, seeing wind turbines to the south won't be the first physical intrusion on the monument's setting. In fact, the lifespan of the ConnectGen project means that the windmills will disappear before the interstate and vehicles do. With the construction of the wind turbines, the Ames Monument will retain the features that make it historic – its associations with the builders of the nation's first transcontinental railroad and world-renowned architect and its spot on the highest point of the old rail line. The wind turbines will not have an adverse effect on these most important features.

ConnectGen's project will convey substantial benefits to the nation, region, and Laramie area with limited impacts. I urge WAPA to approve its application. Thanks for your time.

Sincerely,
Mike Massie
Laramie

Sent from [Mail](#) for Windows 10

0011-02

RESPONSE(S)

Western Area Power Administration

0011-02 Comment and preference noted.

COMMENT(S)

0012: Ron Wilson

From: Ron Wilson <Ron@hishotels.com>
Sent: Monday, April 19, 2021 9:32 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Draft environmental impact statement (EIS) analyzes the impacts related to the development of the Rail Tie Project

Mr. Wieringa,

Let this email serve as my public comments. If you are not the person to whom they should be sent to please forward or let me know the contact info of where I should sent this to.

1. So ConnectGen does not have to identify what turbine model it plans to use until the project is approved and it is too late for comments about specific turbine models and how their track record is vis a vis catching fire, O&M frequency, etc. I think there has been plenty of time to pick what turbine model and this should be disclosed.

2. The statement at the top of page ES-vi is very misleading. "Although the Project components would be visible in the background areas of the Project within the analysis area, the inherent scenic quality for areas within the background (approximately 439,172 acres or 18 percent of the analysis area) would have weak to no degrees of visual change (i.e., contrast perceived by viewers and magnitude of change to landscape character/scenic quality) because of distance and the ability to perceive the Project in relation to other existing visual elements within the landscape." This is only true if looking at the project from above looking down does the logic and math work. Looking at the project from the horizontal plane one notices any 675' tower with a 500' width especially when there are 150 of them and, even more so when they all blink red lights at night. The end of the 3rd paragraph on this same page so indicates "The landscape would appear substantially to severely altered" So which is it: "weak to no degrees of visual change" or landscape would appear substantially to severely altered ". It cannot be both at the same time.

This project is flawed and should be abandon based on the permanent damage to the viewscape.

Ron Wilson
 61 Spruce Springs
 Laramie, WY

RESPONSE(S)

Western Area Power Administration

The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2.

The EIS section in question has been reviewed, and effects on landscape character and scenic quality are consistent between the impacts analysis and the summary of findings in the third paragraph. Section 3.2, "Aesthetics and Visual Resources," considers impacts to scenic quality and concludes, based on an overall analysis of the issues addressed in that section, that the introduction of wind turbines and associated infrastructure in the characteristic landscape would result in significant impacts.

Comment and preference noted.

COMMENT(S)

0013: Courtney Hoover, U.S. Department of the Interior



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 46
Post Office Box 25207
Denver, Colorado 80225-0007

ER21/0135

May 10, 2021

Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
P.O. Box 281213
Lakewood, CO 80228-8213

Subject: Department of the Interior Comments on the Western Area Power Administration
Draft Environmental Impact Statement for the ConnectGen LLC Rail Tie Wind
Energy Project

Dear Mr. Wieringa,

The U.S. Department of the Interior (Department) has reviewed the Western Area Power Administration (WAPA) Draft Environmental Impact Statement (DEIS) for the ConnectGen LLC (ConnectGen) Rail Tie Wind Energy Project (Project) interconnect to WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.

U.S. Fish and Wildlife Service Comments

The U.S. Fish and Wildlife Service (FWS) provides the following comments pursuant to the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 et seq), the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (Eagle Act), 16 U.S.C. 668.

Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)

DEIS: In the DEIS section 3.4.4.5, portions of the Project are within the Preble's meadow jumping mouse (Preble's) Area of Influence (AOI), and suitable habitat for Preble's occurs within the Project area. The Project is located within, and near the northern boundary, of the Cache la Poudre Hydrologic Unit Code 8 Recovery Unit for this species. Although Preble's was captured approximately 1.2 miles southeast of the Project in 1998, there are no capture records of Preble's within the Project footprint from limited trapping conducted between 1989 and 2014.

ConnectGen has committed to avoid Project actions in areas determined to be moderate to moderately-high quality Preble's habitat, to the greatest extent practicable, and has committed to species-specific conservation measures that would be implemented in moderate and moderately-high quality habitats during Project construction. Based on this information WAPA has determined the Project would have "no effect" on the Preble's meadow jumping mouse.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0013: Courtney Hoover, U.S. Department of the Interior, continued

Mr. Wieringa

2

0013-01

FWS Comment: Based on information that portions of the Project are located in the AOI for Preble’s, that there is suitable habitat for Preble’s in the Project area, that portions of the Project are in the Cache la Poudre Hydrologic Unit Code 8 Recovery Unit for Preble’s, that suitable habitat for Preble’s will be impacted by Project actions, and that there are records of a positive capture approximately 1.2 miles southeast of the Project in 1998, there is a likelihood that Preble’s may occur in the Project area. Because Preble’s may occur in the action area, a “may affect” determination under section 7 of the ESA is appropriate, rather than “no effect.”

Platte River Species

DEIS: According to information provided in section ES 6.3, water required for construction of the Project would not exceed 200 acre-feet during Project construction and could be acquired by temporary water-use agreements with landowners with existing water rights. Water may also be acquired by drilling temporary water wells that are not hydrologically connected to the Platte River. During construction, water would be required to batch the concrete for turbine foundations and for building and equipment foundations at the substations, interconnection switchyard, meteorological sites, and the operations and maintenance building, and water would also be used for dust suppression on access roads and other disturbed areas (section 2.2.3.12). During operation of the wind facility, up to 2 acre-feet of water per year would be needed for bathroom and breakroom facilities, vehicle washing and general shop use, and turbine maintenance. Water would be acquired through connection to an existing nearby well or from a new water well permitted through the Wyoming State Engineers Office (SEO). Water use would comply with State and county permitting requirements.

0013-02

FWS Comment: The Draft EIS concludes the Project will have “no effect” to Platte River species, because the Wyoming State Engineers Office (SEO) has determined the use is an “existing water related activity.” The Guidance for Water-Related Projects in Wyoming on the Platte River Recovery Implementation Program website (<https://www.fws.gov/platteriver/>) describes the section 7 consultation process for both new and existing water-related activities. As described on page 4 of the Wyoming guidance, existing water-related activities qualify for streamlined consultation.

WAPA should submit a biological assessment (a template is available on the website) to the FWS along with the certification from the Wyoming SEO confirming that the action qualifies as an existing water-related activity. Upon satisfactory completion of these steps, the FWS can issue a ‘tiered biological opinion’ to WAPA documenting that the Project’s water-related activities are covered by the Platte River Recovery Implementation Program and are not likely to jeopardize the continued existence of the target species nor destroy or adversely modify critical habitat. Please note that one of the Platte River species, the least tern (*Sterna antillarum*), was recently delisted.

0013-04

Eagles and other Migratory Birds

DEIS: In the DEIS section ES 6.4 and Table 2.3, it is documented that an eagle conservation plan will be developed and implemented to minimize the unintentional take of eagles. Actions would include setting wind turbines back at least 1 mile from known, occupied eagle nests. Additionally, ConnectGen will develop and implement a bird and bat conservation strategy for the Project.

RESPONSE(S)

Western Area Power Administration

0013-01

Following informal consultation with the FWS, WAPA has determined the Project may affect, but is not likely to adversely affect, the Preble’s meadow jumping mouse, as described in section 3.4.5.4, “Issue Statement #7.”

0013-02

Section 3.4.4.5, “Special-Status Species,” in the EIS has been updated to note that to verify adequate water supply, ConnectGen will to work with the WYSEO to get a determination that no new depletions because of Project activities will occur, and through consultation with the FWS and completion of a tiered Biological Opinion to determine water use impacts to aquatic wildlife. No impacts are expected to Platte River species, as WYSEO and FWS approvals are required.

0013-04

Confirmed. The FWS announced the final delisting of the interior least tern on Tuesday, January 12, 2021. The least tern has been removed from table 3-10.

COMMENT(S)

0013: Courtney Hoover, U.S. Department of the Interior, continued

Mr. Wieringa

3

FWS Comment: The FWS recommends ConnectGen follow the guidance provided in the FWS Region 6 documents for minimizing wind energy project impacts to golden eagles (USFWS 2013, 2020a, 2020b). The guidance is summarized below, and unless otherwise noted, the term golden eagle nest includes nests that may be described as active, in-use, occupied, inactive, unoccupied, and alternate.

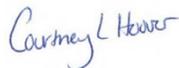
- Never site wind turbines within 0.5 mile of any golden eagle nest;
- Avoid siting wind turbines within 2 miles of all golden eagle nests to relieve the need for operational modifications, such as seasonal curtailment;
- Any wind turbine that is sited between 0.5 and 1 mile of a golden eagle nest should be diurnally curtailed from January 15 through May 1 each year;
- If a golden eagle nest is unoccupied on May 1, curtailment of wind turbines within 1 mile of the nest may be discontinued until January 15 of the following year;
- Wind turbines within 2 miles of a golden eagle nest that becomes occupied should be diurnally curtailed until the young fledge or the nest becomes unoccupied;
- Within areas of high eagle use, avoid siting wind turbines in, or within, a distance equal to the height of the wind turbine.

0013-03

Since take of eagles is anticipated at the Project, we recommend ConnectGen coordinate closely with the FWS during development of an eagle conservation plan to support an application for an eagle incidental take permit. Additionally, to minimize impacts to bird and bat species from the Project we recommend working closely with the FWS during development and implementation of a bird and bat conservation strategy.

If you have any questions regarding this memo, please contact Patricia Sweanor at (307) 256-2987. If you have any questions for the Department, please contact me at 303-478-3373, or courtney_hoover@ios.doi.gov.

Sincerely,



Courtney Hoover
Regional Environmental Officer
Office of Environmental Policy and Compliance

RESPONSE(S)

Western Area Power Administration

Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures.

0013-03

COMMENT(S)

0014: Lynn Woodard

From: Lynn Woodard <lwoodard46@hotmail.com>
Sent: Saturday, May 8, 2021 10:40 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] EIS

0014-01 & 0014-02 I fully support the Rail Tie Wind Project. The wind resource is remarkable and would provide Albany County and Laramie a tremendous income stream in face of declining funds from the State. A small but vocal group of area residents have put forth a steady stream of falsehoods and outright lies. If approved, the land would continue to be grazed for beef production and provide much needed wildlife habitat. Subdivisions continue to erode and permanently destroy such habitat. Private property rights of the landowners must be considered. The view is not a right. Lynn Woodard, Tie Siding

0014-03

Sent from my Galaxy Tab® A

RESPONSE(S)

Western Area Power Administration

0014-01 & 0014-02 Comment and preference noted. Comment noted.

0014-03 Comment noted.

COMMENT(S)

0015: Claire Marshal

From: Claire Marshal <cwbear@comcast.net>
 Sent: Wednesday, April 21, 2021 9:38 AM
 To: Wieringa, Mark <Wieringa@WAPA.GOV>
 Cc: Claire <cwbear@comcast.net>; Reagan Waskom <ReaganW@greyrock.org>
 Subject: [EXTERNAL] Environmental Impact

To WAPA:

0015-01 I strongly urge you to deny approval of interconnection of the Rail Tie Wind Project. You must uphold the public trust and responsibility given to you by carefully considering the big picture, difficult and complicated as it is, that the installation of 150 Maritime Wind Turbines in this location will significantly negatively impact Critical Wildlife Habitat and Migration Routes, as well as significantly negatively impact the cultural, natural, and historic character of this landscape forever.

0015-02 This may sound insignificant, but these intangibles hold profound longterm economic impacts for Laramie, Albany County, Historic Ranches and Land Trusts. In weighing the potential positive impact vs negative impacts you must think long term and big picture. The project is neither economically nor environmentally sound at this time.

Albany county regulations must be updated. Do the short term gains in revenues, profits, employments outweigh the profound longterm negative impacts to the people, properties, wildlife, and integrity of this landscape? No they do not.

I am a proponent of renewable energy. It is critical that we transition from fossil fuels. These are very difficult choices that we must all navigate with skill and integrity. We must learn to make these choices in carefully considered ways that reflect environmental justice and sensitivity to the natural world and the creatures that are integral to the biodiversity and health of our lands. This is not an easy task, but it is your responsibility

We must not give away to the fastest, highest bidder something that cannot ever be restored. Wind generated electricity may have a place in this landscape, but the technology must improve, the regulations must be in place, and this particular project is not the right one for this location.

Remote corporations looking for profit must not be allowed to decimate this landscape for wildlife and humans.

Please uphold the common good and deny approval of this interconnection

Thank you
 Claire Marshal
 property owner in the Trail Creek Subdivision

RESPONSE(S)

Western Area Power Administration

0015-01 Comment and preference noted.

0015-02 The EIS considers impacts to wildlife (section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species,” and section 3.5, “Avian and Bat Species”), vegetation (section 3.14, “Vegetation”), visual resources (section 3.2, “Aesthetics and Visual Resources”), and cultural resources (section 3.6, “Cultural Resources and Native American Concerns”).

0015-03 Comment noted.

COMMENT(S)

0016: Ruth and Steve Sommers

From: ruth@richardslake.org <ruth@richardslake.org>
Sent: Tuesday, May 11, 2021 2:32 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Ruth Sommers <somm8@icloud.com>
Subject: [EXTERNAL] Comments on draft EIS for Rail Tie

Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
Post Office Box 281213
Lakewood, Colorado 80228-8213

Mr. Wieringa:

I make the following comments and observations of WAPA's Draft Environmental Impact Statement (EIS) for the proposed Rail Tie Project in southern Albany County, Wyoming:

0016-01

It is clear much of the draft EIS is rushed. Several studies are missing and need to be completed in order that WAPA can meet its stated goal identified in the draft EIS at pg. ES-v, which is that the EIS analysis process is to provide opportunities to lessen impacts through design features or practices identified which will result in providing WAPA the *required impact disclosure to make an informed and defensible decision* on the interconnection request. It is my opinion that WAPA, as well as other entities involved in the permit process, cannot make an informed or defensible decision without more information about potential consequences of the proposed project. I highlight some areas in this email where additional information is needed to meet the objective of making an informed decision.

0016-02

The evaluation of impacts to geology and soils appears to only have been a desktop review of existing data and literature. **Geotechnical studies** performed more than eleven years ago for the proposed Hermosa Wind Project were undertaken only on the west side of the currently proposed project area. Maps of Geologic Features (Figure 2 of TetraTech's [Geology and Soils Technical Report](#)) and Depth to Groundwater (Figures 8 of TetraTech's [Surface Water and](#)

RESPONSE(S)

Western Area Power Administration

0016-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, "Public Involvement and Scoping," of the EIS.

COMMENT(S)

0016: Ruth and Steve Sommers, continued	
0016-02 continued,	<u>Groundwater Technical Report</u>) indicate quite different conditions of geology and depth to water between the east and west sides of the project. Assumptions drawn from the west side cannot be made for the east side. Additionally, assumptions based on 11-year-old turbine weight and size specifications are outdated considering the much greater height, weight, and turbine pad depth of turbines now proposed. Findings on the west side by Black & Vetch in 2009 and 2010 that subsurface conditions on that side were suitable to support turbine foundations were made based on turbine pad depths of 7 to 8 feet; now proposed turbine pads are up to 12 feet, if not deeper, depending on the type of pad chosen (up to 40 feet for pier foundations). Additionally, the 590-ft towers (V150) proposed for Rail Tie are 150 feet taller and much heavier than towers that would have been used for Hermosa (V90).
0016-03	
0016-04	Black & Vetch primarily encountered sandstone and siltstone bedrock foundations on the west side, a quite different scenario from the anticipated granite bedrock of the east side. They specifically state soil bedrock conditions for granite (on the east side) will likely be significantly different from conditions encountered on the west side. They cited concern that in the areas where granite bedrock is found, there may be relatively shallow rock that could present issues with constructing a gravity foundation, mainly a concern for excavation. Caution was also expressed in those reports with the second set of boreholes drilled that since there were observations of abundant rock outcropping at some sites, the possibility of shallow bedrock and difficult excavation should be considered in the design of the project. Furthermore, Black & Vetch noted finding sometimes surprising subsurface conditions on the west side, where mapping of anticipated Sherman Granite bedrock conflicted with what they discovered. One might conclude map inaccuracies could be found elsewhere. But at this point, the entire east side of the project is mapped to indicate Sherman Granite bedrock (Figure 2, <i>Geology and Soils Technical Report</i>). Black & Vetch proposed additional studies be undertaken.
0016-05	The <u>Geology and Soils Technical Report</u> for WAPA's draft EIS for Rail Tie contain the following observations and caveats: "Sherman Granite forms the core...and underlines most of the project area." (pg. 5); "Geotechnical studies have not been conducted for the eastern portion of the project area." (pg. 9); "The studies concluded that wind project design in the area should consider the possibility of shallow bedrock and difficult excavation." (pg. 9); and "The potential presence of shallow granitic bedrock could impact construction activities and may require more intense excavation methods such as blasting or hydraulic hammering" (pg. 13)
0016-06	TetraTech's <u>Surface Water and Groundwater Technical Report</u> , 6.2.1.1, pg. 34 again reiterated, "Geotechnical studies have not been conducted for the eastern portion of the project area." "As part of the geotechnical investigation for the Project, <i>the depth and strength of the subsurface soil structures, including groundwater depth and characteristics, would need to be investigated in order to determine dynamic properties for the individual turbine foundation designs.</i> " At pg. 33 the report also states, "A water supply and yield analysis has not been conducted but is planned, prior to review and approval by the ISC." At

RESPONSE(S)

Western Area Power Administration	
0016-02	ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project Area—to inform design and construction. This information has been considered for the final EIS and added to WAPA's Project website. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.
0016-03	The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2.
0016-04	The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Additional preliminary geotechnical engineering studies were conducted and presented in the preliminary <u>Geotechnical Engineering Report</u> (Terracon 2019) for the entire proposed Project Area. This report has been added by reference to section 3.7.4, "Baseline Description."
0016-05	ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project Area—to inform design and construction. This information has been considered for the final EIS and added to WAPA's Project website. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

COMMENT(S)

0016: Ruth and Steve Sommers, continued

0016-06
continued, this point, the source for millions of gallons of water for the project has not yet been determined. This review needs to be available to and studied by county authorities *before* the ISC hearing in late July. TetraTech clearly warns the information provided in WAPA’s draft EIS is insufficient.

0016-07 Furthermore, if it is found after additional reports have been completed, that excavation for turbine pads will result in the need for blasting or dewatering an area for construction, **Dewatering and Blasting Plans** need to be prepared and provided to decision-makers *ahead* of making decisions, so those decisions are based on accurate and complete information. These Plans should also include Environmental Protection Measures (EPMs) that will be put into place to protect landowners who rely on their shallow ground-water wells for drinking water or for livestock, and whose underground structures such as foundations and septic systems could be damaged by blasting.

0016-08 The omission in the body of the draft EIS of a discussion of the potential for dewatering is concerning. TetraTech’s technical report on surface and groundwater discusses the potential as a real possibility (pgs. 34, 35). The 40 wells tested for depth within the project area itself showed a static water depth of *10 feet or less*, indicating the presence of shallow groundwater within the project area. The report states “...it is possible that dewatering may be required for excavation of some turbine foundations, namely those located within the northeastern portion of the siting corridor.” They go on to describe the process, the development of a Dewatering Plan, and the attention required for dissipation of returned water to avoid erosion. None of this is brought forward into the body of the draft EIS, and dewatering is not considered to be an impact indicator. Instead, the conclusion of the WAPAs draft EIS is that below grade-disturbing activities would also not likely impact groundwater availability, as aquifers in the area recharge quickly. But these aquifers recharge only from precipitation, which mainly occurs in late spring. Last year, the area experienced drought, with little to no measurable precipitation for the summer and fall months. What happens to aquifer recharge under this scenario? What happens to the wells of surrounding landowners? This question begs an answer in the final EIS, with associated EPMs to mitigate potential negative outcome for rural residents, and to compensate for same.

The exclusion of these needed additional reports and plans handicaps informed decision-making by federal, county and state officials who, without these, cannot make educated decisions on the project. The project is rushed. Much more information needs to be gathered, problems anticipated, and mitigation/compensation identified. County Commissioners are statutorily and by regulation required to protect the health, safety, and welfare of their residents. Currently proposed EPMs are not sufficient to meet this standard.

RESPONSE(S)

Western Area Power Administration

0016-06 The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Comment and preference for water supply and yield analysis noted.

0016-07 ConnectGen would comply with WYDEQ and WYSEO permit requirements related to blasting and dewatering. Additional information related to ConnectGen’s schedule and the status of plan development, as well as relevant agency references, have been incorporated into section 2.2.6.1, “Project Plans,” of the EIS.

0016-08 Comment and preference noted. Additional language was provided in the final EIS to clarify Project dewatering activities and potential dewatering impacts (see section 3.15.5.3, “Issue Statement #2”). There is evidence that subaquifers in the Project Area are not linked and that ground-disturbing activities would not cause dewatering or connectivity between groundwater resources (WSGS 2021). Additionally, the WYSEO requires a construction dewatering permit (see section 3.15.1.2, “State Regulations”) and requires ConnectGen to apply EPMs (see section 2.2.6, “Environmental Protection Measures”) throughout the life of the Project to avoid impacts to groundwater resources. As summarized in section 3.15.5.3, “Issue Statement #2,” water extracted at turbine installation locations would be transported to upland areas within the same hydrologic catchment area, thereby keeping the water within the same catchment area that feeds to local waterbodies and wells, and would not impact groundwater availability.

COMMENT(S)

0016: Ruth and Steve Sommers, continued

0016-09 **Erodibility Risk** – A Surface Water Assessment Report was done for Hermosa in 2009 and cited in the EIS as evidence of low to medium erodibility risk for stream segments throughout the project area. This assessment was done only for the west side of the project; no study has been done or even proposed for the east side of the project which has the highest possibility for blasting and dewatering and disposal of water into the Dale Creek watershed (and ultimately the South Platte). TetraTech specifically cites the need for dissipation methods for return of water from dewatering to avoid erodibility and scouring downstream while also stating the highest prospect for dewatering will occur in the northeastern portions of the area. They go on to state that produced water from dewatering would be discharged eventually to the same drainage basin from which it came via nearby surface water “features.” On the east side of the project where dewatering is anticipated, all surface water “features” eventually drain into Dale Creek. Clearly there is potential for erosion to occur particularly here, where no studies have been undertaken.

0016-10 Wyoming Game & Fish Department recommended a Reconnaissance Level Assessment (RLA) be completed for the Harney Creek-Laramie River sub-basin to determine potential downstream aquatic impacts to Species of Greater Conservation Need within the sub-basin. This RLA would likewise provide information on erodibility risk of surface waters in that sub-basin. But this area is located north of the west side of the project and would NOT provide much-needed information on surface water erodibility for the east side of the project, the Dale Creek watershed.

0016-11 To meet WAPA’s goal of making an informed and defensible decision on ConnectGEN’s interconnection request, the following studies and plans need completion and incorporation into the final EIS, with careful anticipation and full disclosure of potential impacts, with meaningful measures proposed to mitigate those impacts:

- Thorough geotechnical studies for the proposed project area east of Hwy 287;
- A water supply and yield analysis for the entire project with identification of water needed for turbine pads and dust suppression with identification of the specific source of water expected to be used;
- Dewatering Plan if dewatering is needed;
- Blasting Plan if blasting will be needed for turbine pads, electric lines and/or corridors;
- A surface water assessment analysis for the proposed project area east of Hwy 287 (for erodibility susceptibility of stream segments);
- A reexamination of geotechnical studies done for the proposed Hermosa wind project to ascertain support for today’s larger, heavier towers that require deeper turbine pads.

Thank you for your attention to these.

RESPONSE(S)

Western Area Power Administration

0016-09 The EIS identifies that the Hermosa West Wind Farm Project is not inclusive of the Rail Tie Wind Project Area: “previous field investigations described in the Surface Waters Assessment Report for the Hermosa West Wind Farm Project were conducted for a different project encompassing the western and approximately half of the Project Area, and results noted in the Surface Waters Assessment Report detailed that that project was not expected to contribute marked changes in sediment load (ERM 2010a).” High erodibility risk across the Rail Tie Project Area is discussed in section 3.15.5.3, “Proposed Action,” of the EIS. ConnectGen would comply with WYDEQ requirements to avoid and reduce erosion impacts to surface water features, such as a SWPPP (WQ-8). Proper implementation, use, and maintenance of EPMs per WYDEQ requirements lead to decreased erosion risk across the Project Area. Please refer to table 2-6, which details the measures ConnectGen would take to protect waterbodies and aquatic resources during the life of the Project.

0016-10 A reconnaissance level assessment was conducted for the Project Area to identify sediment sources and existing channel stability problems resulting from existing and past land practices (Tetra Tech 2021b).

0016-11 ConnectGen has completed a reconnaissance level assessment of surface water resources in the eastern portion of the Project Area, which has been incorporated into the final EIS. ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project Area—to inform design and construction. This information has been considered for the final EIS and added to WAPA’s Project website. Additional information related to ConnectGen’s schedule and the status of plan development, as well as relevant agency references, have been incorporated into section 2.2.6.1, “Project Plans,” of the EIS.

COMMENT(S)

0016: Ruth and Steve Sommers, continued

Ruth and Steve Sommers
27 Beaver Trail
Tie Siding, WY 82084

Sent from [Mail](#) for Windows 10

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0017: Denise and John Walkusch

From: Denise Walkusch <denisewalkusch@gmail.com>

Sent: Wednesday, April 7, 2021 9:43 AM

To: Wieringa, Mark <Wieringa@WAPA.GOV>

Subject: [EXTERNAL] Input

0017-01

It's a pretty miserable thing to do, with no consideration or regard for the people and the land of this beautiful area... the negative impact is just too great. It's obvious to us ConnectGen only cares about money.

**Denise, John and family
Albany County, WY**

RESPONSE(S)

Western Area Power Administration

0017-01

Comment noted.

COMMENT(S)

0018: David Kilpatrick, M.D.

From: David Kilpatrick <dmkmd@bresnan.net>
Sent: Thursday, April 22, 2021 7:56 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Interconnect

0018-01 I am strongly in favor of this project. As a land owner, I obviously have an interest, but more importantly, I have a responsibility as well. If we are to decrease the carbon footprint in this country, we need to get away from oil and coal, which means renewables such as wind. There is likely to be some impact, but it is minimal compared to ongoing oil and coal. More importantly, the wind is a constant, which helps stabilize the grid, and there is the power lines to carry the power. Opponents would say build new transmission lines, but the impact of that in a new area, even if funding available, which it likely isn't, is considerable. It makes much more logical sense to use established infrastructure.

0018-02 David Kilpatrick, MD
48 Copper Lane
Tie Siding, WY

Sent from my iPad

RESPONSE(S)

Western Area Power Administration

0018-01 Comment and preference noted.

0018-02 Comment noted.

COMMENT(S)

0019: Emma Clute

From: Emma Clute <elclute@mailfence.com>
Sent: Monday, April 26, 2021 2:40 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Opposition to RTWP

Dear WAPA,

0019-01 I am a current and life-long resident of Albany County, a taxpayer, property-owner, and conservationist. I strongly oppose the Rail Tie Industrial Wind Project proposed by ConnectGen. **I urge you to take a No Action alternative on the EIS for the project.**

When I first learned of the Rail Tie project, I was not opposed to it. After spending a year studying wind power in general and the Rail Tie project specifically, I have become increasingly and unequivocally convinced that it is ill-conceived, irresponsibly sited, and intensely damaging to our local ecosystem and to our community.

In reading the draft environmental impact statement, I am struck by the consistent pattern of acknowledging the myriad problems with the project followed by a dismissal of their significance. With respect, for you and for ConnectGen, this land is simply a collection of data points, an abstract construction. For me, however, this is my home, my life, and my heritage.

0019-02 At this point, you cannot be unaware of the fundamental problems with wind energy in general--its staggering inefficiency, the massive quantity of fiberglass waste produced, the fact that it can never replace existing energy infrastructure and is therefore simply creating
 0019-03 additional waste. If these problems are insufficient to merit the rejection of the RTIWP, please consider the planned proximity of these particular turbines to homes, protected spaces, and wildlife-critical habitats. The inherent problems with wind energy in general would be compounded exponentially by the proposed siting of the project.

0019-04 An increasing number of studies looking at the impact of wind turbines indicate that the negative impact on humans and animals has been underestimated. As we learn more about these installations, it is increasingly clear that they cannot--indeed, *must not* be treated as benign constructions. Turbines pose a real threat to the physical and mental health of humans and animals in their vicinity.

No doubt you are under immense pressure from ConnectGen to approve this project, and I do not envy you your position. Please remember, however, that your obligation is not to ConnectGen, but to the people and environment of Wyoming. You have both an opportunity

RESPONSE(S)

Western Area Power Administration

0019-01 Comment and preference noted.

0019-02 Comment noted.

0019-03 Comment noted.

0019-04 Comment noted. Impacts to human health are considered in section 3.10, "Public Health and Safety." Impacts to wildlife are considered in section 3.4, "Aquatic and Terrestrial Wildlife and Special-Status Species."

COMMENT(S)

0019: Emma Clute, continued

and a responsibility to do what is right, even if it is difficult. I and countless others are depending on you to take a stand and rule No Action on the Rail Tie project.

Thank you for your consideration,

Emma Clute

--

Sent with <https://mailfence.com>

Secure and private email

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0020: Jeffrey J. Olson

From: Jeffrey Olson <jjolson58@gmail.com>
Sent: Sunday, April 25, 2021 8:10 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Public Comment on Rail Tie Wind Project Draft EIS

April 25, 2021

Mark Wieringa
Rail Tie Wind Project
WAPA Headquarters
PO Box 281213
Lakewood,CO 80228-8213

I just skimmed the Environmental Impact Statement (EIS) for the Rail Tie Project. What concerned me the most was the visual impact of the project. This seems to be the major point of contention and reason there are strong efforts to block the project.

0020-01

My perspective stays out of the specific details and reasons for or against the project. Based on the EIS I am ready to accept the visual impact of the project on Albany County and surrounds. I understand how some persons who live within the viewscape of the project are "energetically" opposed to it. These are a small minority of Albany County citizens.

0020-02

However, it is my view that the Rail Tie Wind Project is a small step in the larger process of transitioning from carbon based to renewable energy.

The NIMBYism (Not In My Backyard) that seems to drive opposition to the project is to be expected. It is ironic that during the 50s and 60s when the interstate freeway system was built, whole neighborhoods in urban areas were subject to eminent domain and leveled. These were mostly low-

RESPONSE(S)

Western Area Power Administration

0020-01 Comment and preference noted.

0020-02 Comment noted.

COMMENT(S)

0020: Jeffrey J. Olson, continued

income neighborhoods that had little voice in the freeway design process. Opposition to the Rail Tie Project is spearheaded by upper-income individuals. Money talks.

I accept the reality of visual (and other) impacts laid out in the EIS should the Project be approved. The Project is one small step in affirming the larger worldwide effort to combat climate change. It is one step in affirming the common good, the best interests of the vast majority of us here in Albany County, Wyoming, the USA, and the world.

Jeffrey J Olson
210 S Cedar St.
Laramie WY 82072

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0021: John F. Freeman

From: John F. Freeman <frenchcreek@wyoming.com>
Sent: Sunday, April 18, 2021 9:20 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Public Comment: Rail Tie Wind Project

0021-01 YES on RailTieWind project.

Understandably, the opposition to this project appears to come primarily from a few private property owners within or surrounding the proposed project site. The NIMBY phenomenon or, more generally, unfettered individualism has a long and checkered history in our beloved state. If there is any Wyoming county where priority should be given to "the greatest good for the greatest number," it is Albany County, home of the University of Wyoming. Our students and young people know that,

0021-02 if we do not accelerate our shift away from carbon, there will be a real question as to how much longer Mother Nature will put up with us.

It is both unfortunate and short-sighted that Wyoming has yet to adopt state renewable portfolio standards, meaning that soon-to-be cheaper renewable energy generated in Wyoming will continue to be shipped to distant cities rather than directly benefiting local rate payers.

John F. Freeman
Laramie, WY

RESPONSE(S)

Western Area Power Administration

0021-01 Comment and preference noted.

0021-02 Comment noted.

COMMENT(S)

0022: Fred Ames

From: Frederick.Ames@aol.com <frederick.ames@verizon.net>
Sent: Thursday, April 29, 2021 1:35 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Question on Ames Monument

Good evening,

The Technical Report Historic Properties Visual Impact Assessment: addendum to the Cultural Resources Evaluation, 4/02/2021 in the draft WAPA EIS, states in part **"The current review concludes that**

introduction of the turbines would tend to dominate the setting of the historic property and would result in a strong visual contrast to the existing landscape of KOP 18 ", and later in the report

"...development of the project will result in an Adverse Effect on KOP 18, the Ames Monument".

It is settled that the project will detract from the historical and architectural value of the monument. What further mitigation is possible to protect this National Historic Landmark property? Can the locations of

0022-01

the towers be rearranged or the number of them reduced? At a minimum can the white wind towers and blades be painted in a camouflage pattern? And lastly, what is the role of the Department of the Interior

0022-02

in the review process?

Thank you for giving me the opportunity to submit my comments and concerns.

Sincerely, Fred Ames

RESPONSE(S)

Western Area Power Administration

Mitigation to the Ames Monument NHL will be addressed in a PA, as described in EIS section 3.6.5.3, "Proposed Action." As stated in section 3.6.5.2, "Methods of Analysis," of the EIS, the PA also addresses special protection requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States. Per the EIS, alternatives for turbine arrangement consider the use of fewer larger megawatt turbines (84 6.0-MW turbines, up to 656 feet in height) and, alternatively, a greater amount of smaller megawatt turbines (up to 149 3.0 MW turbines, 500 feet in height). Regarding painting turbine towers and blades, per ConnectGen's EPM VIS-4 (section 2.2.6, "Environmental Protection Measures," table 2-6), Turbine components will be painted with a light, nonreflective white color in accordance with the Albany County Wind Energy Siting Regulations (Albany County 2015). Per the county regulations, this paint selection is to help the Project blend with the natural visual character of the area, although the paint will not be in a camouflage pattern.

0022-01

0022-02

State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, "Cooperating Agencies," for a complete discussion of cooperating agencies.

COMMENT(S)

0023: Ron Wilson

From: Ron Wilson <Ron@hishotels.com>
Sent: Tuesday, April 27, 2021 10:25 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Jennifer Kirchoefer <jmkirchoefer@gmail.com>
Subject: [EXTERNAL] Rail Tie Draft EIS Public Comments

To Whom it may concern,

As a pilot for over 20 years with thousands of hours of experience and doing every allowable visual and instrument approach into the Laramie airport I am well qualified to speak on the subject of how the Aircraft Detection Lighting Systems (ADLS) will work, or in this case, not work.

One only needs to read the Advisory Circular (AC) dated 10/8/2016 from the Federal Aviation Administration (FAA) about "Obstruction Marking and Lighting". Note Chapter 14 of the AC that deals with Aircraft Detection Lighting Systems.

Rule 14.2.1.1 indicates "Horizontal detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the perimeter of the volume, **which is a minimum of 3 NM (5.5 km) away from the obstruction or the perimeter of a group of obstructions.**

Rule 14.2.1.2. says "Vertical detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the volume, which **extends from the ground up to 1,000 feet (304 m) above the highest part of the obstruction or group of obstructions, for all areas within the 3 NM (5.5 km) perimeter defined in subparagraph 14.2.1.1 above.**

Rule 14.2.3 indicates "**Acceptance of ADLS applications will be on a case-by-case basis and may be modified, adjusted, or denied based on proximity of the obstruction or group of obstructions** to airports, low-altitude flight routes, military training areas, or other areas of frequent flight activity. It may be appropriate to keep certain obstructions closest to these known activity areas illuminated during the nighttime hours, while the remainder of the group's obstruction lighting is controlled by the ADLS.

ConnectGen's Attachment 2 Site Plan in its Application for Commercial Wind Energy Conversion Systems (WECS) Permit shows turbine locations will be within 3 NM of the nearby mountain. So,

0023-01

RESPONSE(S)

Western Area Power Administration

0023-01

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.

COMMENT(S)

0023: Ron Wilson, continued

0023-01,
continued

they cannot meet Rules 14.2.1.1 and 14.2.1.2 and rule 14.2.3 indicating ConnectGen's ADLS application will likely be denied.

Appendix B-3 concludes "To provide an acquisition distance of 1.5 statute miles, a higher intensity of 20,000 candelas would be required. This light, with 3-statute mile visibility at night, **could generate a residential annoyance factor.**" This is ten times the typical 2,000 candelas used with typical wind turbine lighting configurations.

All this mean very bright blinking lights will be on all night long. Also, the most used instrument approaches into the Laramie airport come from the East-Southeast and involve flying right over the proposed wind farm. The FAA will very likely require the red warning lights to stay on all night.

Please include this in the public comments.

Ron Wilson
61 Spruce Spring Rd
Laramie, WY

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0024: David Ames

From: david ames <outlook_C001FF94E6AF57A2@outlook.com>
Sent: Wednesday, May 12, 2021 3:31 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Ames Monument

Has the windfarm project been laid out to protect the impact of the Ames monument ? The project responds to the needs of the present but I hope it will not be at the expense of a monument commemorating a national achievement of the highest order.

The transcontinental railroad was the largest infrastructure project in the history of the country when it was built. The leadership and fund raising of the Ames brothers kept the Union Pacific portion of it alive at a crucial period of its construction. Their monument sited at the highest elevation of the original line, and designed by the great architect HH Richardson, is an appropriate memorial to a tremendous accomplishment. Its influence on Wyoming exists to this day.

0024-01 I am concerned that the monument not be collateral damage of the windfarm project

Thank you

David Ames (Great great grandson of Oliver Ames, Jr.)

Sent from [Mail](#) for Windows 10

RESPONSE(S)

Western Area Power Administration

0024-01

Comment noted. The impacts to historical resources such as Ames Monument are considered in section 3.6, “Cultural Resources and Native American Concerns.”

COMMENT(S)

0025: Grant C. Showacre, Albany County Assessor

From: Grant Showacre <GShowacre@co.albany.wy.us>
Sent: Friday, April 30, 2021 12:17 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] FW: property values????

Grant C. Showacre
Albany County Assessor
525 Grand Ave. Rm. 206
Laramie, WY 82070
Phone: 307-721-2511
Fax: 307-721-2519
Email: gshowacre@co.albany.wy.us
Website: <https://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.co.albany.wy.us%2Fassessor.aspx&data=04%7C01%7C%7Cd8886559f4c4868dda108d90c04275c%7C31ae220fb94f463a9cfd15bbc9909df5%7C0%7C0%7C637554034263159678%7CUnknown%7CTWFpbGZsb3d8eyJWljoImC4wLjAwMDAilCjQjoiV2luMzIiLCB1I6lk1haWwILCjVCI6Mn0%3D%7C1000&data=wIkCQXrnLNOISDCEFidr47%2BComGRG6kylR4Lcl17%3D&reserved=0>

This message may contain confidential or proprietary information intended only for the use of the addressee(s) named above or may contain information that is legally privileged. If you are not the intended addressee, or the person responsible for delivering it to the intended addressee, you are hereby notified that reading, disseminating, distributing or copying this message is strictly prohibited. If you have received this message by mistake, please immediately notify us by replying to the message and delete the original message and any copies immediately thereafter.

-----Original Message-----

From: Grant Showacre
Sent: Thursday, April 29, 2021 8:51 AM
To: [REDACTED]
Subject: RE: property values????

1

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0025: Grant C. Showacre, Albany County Assessor, continued

Good morning Everyone,

I would like to thank Mr. Davis for this email. I would also like to give reasons for my questioning the windfarm being the reason for the decrease in the east cluster of Fish Creek property values.

Yes there were sales in 2020 that came in lower than expected. There was also as sale in 2019 with similar decreases of value in the sale. The 2019 sale was before the windfarm was known to the public at large. Also the properties were all on the market for extended periods of time, 3 to 4 years. Between the 2019 sale having similar decreases as the 2020 sales and the extended length of time of these properties on the market gives me reason to consider other possible reasons for the reductions.

Another reason is I have 15 other 2020 sales of vacant and improved properties that are in the perimeter area of the windfarm. All of these properties show no sign of the a drop in value. Many of the sales are from October, November and December of 2020. This is well into the time that the windfarm was general knowledge. I have the sales and values (2020 and current) on a spreadsheet along with a map showing the location of the sales in relation to the proposed windfarm project.

I am not saying specifically what the cause of the reduced sales in front area of Fish Creek are. What I am saying this has many considerations for me to reflect on. I want everyone to have a full picture.

Should you wish to look at the data and the map please come in so I can show you the information. Because this involves sales and this is a non-disclosure state I prefer to do this in person.

I will be attending all future meetings should there be any questions. Please know I am tracking this situation very closely because of the concerns of the owners of the potentially affected properties. You may also contact me at any time other than the meetings.

Again, thank you Mr. Davis for your email.

Thank you,

Grant C. Showacre
Albany County Assessor
525 Grand Ave. Rm. 206
Laramie, WY 82070
Phone: 307-721-2511
Fax: 307-721-2519
Email: gshowacre@co.albany.wy.us
Website: <https://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.co.albany.wy.us%2Fassessor.aspx&data=04%7C01%7C%7Cdf8886559f4c4868dda108d90c04275c%7C31ae220fb94f463a9cfd15bbc9909df5%7C0%7C0%7C637554034263169633%7CUnknown%7CTWFpbGZsb3d8eyJWljoImC4wLjAwMDAilCjQljoiv2luMzIiLCBti6k1haWwILCjVCI6Mn0%3D%7C1000&data=kKbZB4xWpo00V9GcGBBQXCpZnAuYqxIjguXr3ZKjQ%3D&reserved=0>

This message may contain confidential or proprietary information intended only for the use of the addressee(s) named above or may contain information that is legally privileged. If you are not the intended addressee, or the person responsible for delivering it to the intended addressee, you are hereby notified that reading, disseminating, distributing or copying this message is strictly prohibited. If you have received this message by mistake, please immediately notify us by replying to the message and delete the original message and any copies immediately thereafter.

2

0025-01

RESPONSE(S)

Western Area Power Administration

0025-01

Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0026: Ron Wilson

From: Ron Wilson <Ron@hishotels.com>
Sent: Thursday, April 29, 2021 11:41 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Jennifer <jmkirchhoefer@gmail.com>
Subject: [EXTERNAL] Rail Tie EIS

Update to my previous comments.
Please include this in the public comments.

As a pilot for over 20 years with thousands of hours of experience and doing every allowable visual and instrument approach into the Laramie airport I am well qualified to speak on the subject of how the Aircraft Detection Lighting Systems (ADLS) will work, or in this case, not work.

One only needs to read the Advisory Circular (AC) dated 10/8/2016 from the Federal Aviation Administration (FAA) about "Obstruction Marking and Lighting". Note Chapter 14 of the AC that deals with Aircraft Detection Lighting Systems.

Rule 14.2.1.1 indicates "Horizontal detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the perimeter of the volume, **which is a minimum of 3 NM (5.5 km) away from the obstruction or the perimeter of a group of obstructions.**"

0026-01

Rule 14.2.1.2. says "Vertical detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the volume, which **extends from the ground up to 1,000 feet (304 m) above the highest part of the obstruction or group of obstructions, for all areas within the 3 NM (5.5 km) perimeter defined in subparagraph 14.2.1.1 above.**"

Rule 14.2.3 indicates "**Acceptance of ADLS applications will be on a case-by-case basis and may be modified, adjusted, or denied based on proximity of the obstruction or group of obstructions to airports, low-altitude flight routes, military training areas, or other areas of frequent flight activity. It may be appropriate to keep certain obstructions closest to these known activity areas illuminated during the nighttime hours,** while the remainder of the group's obstruction lighting is controlled by the ADLS."

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0026: Ron Wilson, continued

0026-01,
continued

ConnectGen's Attachment 2 Site Plan in its Application for Commercial Wind Energy Conversion Systems (WECS) Permit shows turbine locations will be within 3 NM of the nearby mountain. So, they cannot meet Rules 14.2.1.1 and 14.2.1.2 and rule 14.2.3 indicating ConnectGen's ADLS application will likely be denied.

Appendix B-3 concludes "To provide an acquisition distance of 1.5 statute miles, a higher intensity of 20,000 candelas would be required. This light, with 3-statute mile visibility at night, could generate a residential annoyance factor." This is ten times the typical 2,000 candelas used with typical wind turbine lighting configurations.

0026-02

The main Instrument approach into Laramie is the RNAV (GPS) RWY 30. Which is on a 120 degree line off the center of the two runways. This is the most convenient, and fuel-saving, approach for the airlines coming from Denver. This approach line runs out 15 NM (think 17.25 statute or regular miles) from the threshold of runway 30 to where a plane must be established on a direction and altitude. In reality Denver Center would have the pilot well established more than 15 NM out. So this line runs right between I-80 and US 287, just about over the "town" of Sherman. So based on 14.2.3 of the AC, **I don't see how the FAA would allow ADLS approval due to the wind farm being smack in the middle of the main approach into Laramie.** 150 20,000 candelas blinking tower lights, at night, is a very bright light.

All this mean very bright blinking lights will be on all night long. Also, the most used instrument approaches into the Laramie airport come from the East-Southeast and involve flying right over the proposed wind farm. The FAA will very likely require the red warning lights to stay on all night.

Ron Wilson
61 Spruce Spring Rd
Laramie, WY

RESPONSE(S)

Western Area Power Administration

0026-01

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.

0026-02

See response to comment 0026-01.

COMMENT(S)

0027: Don Wierbilis, Tie Siding Volunteer Fire Department

From: DON WIERBILIS <d.wierbilis@msn.com>
Sent: Tuesday, May 4, 2021 1:14 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Alan Minier <alanminier8@gmail.com>; jdwhiskeytown@yahoo.com
Subject: [EXTERNAL] Rail Tie Project does not sufficiently protect people and the environment

Dear WAPA Representatives,

I'm writing as a landowner/resident on Boulder Ridge near the site of the proposed Rail Tie Wind Energy Project, as well as Assistant Chief of the Tie Siding Volunteer Fire Department (we are one of two volunteer departments in Albany County fire District #1 who will be immediately/directly affected by this development.)

0027-01 I'm sure by now you have seen the long list of issues pointed out by others (I have included this at the bottom for reference.) First, I agree that all of these issues have not been adequately addressed, and until concrete answers are provided and these concerns are addressed, this project must receive a "No Connection Decision".

0027-02 Beyond this list, I also want to point out an additional environmental risk that is often overlooked. Specifically, the fact that many of these towers will be located very close to the heavily forested Boulder Ridge, and the Adjacent Roosevelt National Forest (as well as private homes). Both of these areas will be subject to a very high risk of Critical Fire Behavior for the next several decades due to the massive damage done by the recent pine beetle infestation. Siting towers this close to the forest resources dramatically increases the risk of wildfire, with the accompanying destruction of homes, watersheds, and wildlife habitat that comes with "modern" wildfires in the Rocky Mountains.

0027-03 And this threat is not only limited to direct lightning strikes and other nacelle fires that threaten the area immediately surrounding the towers. The towers also create a significantly increased chance of lightning strikes for **many miles around**. Here is an example study: "Lightning discharges produced by wind turbines - Montanya - 2014 - Journal of Geophysical Research: Atmospheres - Wiley Online Library" <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013JD020225> Quoting from the document: "This is a very rare type of flash not reported before and could be classified as a ground-to-cloud-to-ground flash. The relevance of which is the production of extra lightning strikes within a few tens of kilometers around tall objects, which without their presence may not have occurred." The fact that the towers proposed for this site will be some of the largest ever deployed in an "on-shore" development, will only increase this risk.

The bottom line – massively destructive wildfires, often caused by lightning and fanned by the same wind that attracts wind turbines, are already too common in this area. Anything that increases the chance of lightning also increases the risk to the environment and the local residents.

RESPONSE(S)

Western Area Power Administration

0027-01 Comment and preference noted.

0027-02 Larger, timber-involved fires on the national forest are the fire types that grow to a large size and intensity, not grass and shrub fires. The *Rail Tie Wind Project Wildland Fire Background* (SWCA 2021) memorandum has been updated to include a discussion about how non-native species, including cheatgrass, influence fire regime. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record.

0027-03 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to incorporate reference to upward lightning. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record.

COMMENT(S)

0027: Don Wierbilis, Tie Siding Volunteer Fire Department, continued

0027-04 So what can be done? I'm not fundamentally opposed to wind energy, but in this case the only real mitigation - short of picking a completely new site well away from the forests and people - is to move the towers further away from the wooded areas and individual landowner properties (those who are not benefitting from the lease payments!). An absolute minimum of one mile from the forested areas and private land boundaries will at least give us some chance to stop fires before they reach the heavy forest fuels and homes, and will also limit human exposure to turbine noise, ice throw, etc. This will do little to mitigate the increased lightning strikes in the area around the towers, but anything is better than the pitiful setbacks in the current proposal. (Please see links to article below regarding recent wildfires caused by turbines in the local area. Luckily, both of these were NOT in wooded areas!)

Please vote "No" until the developers come forth with concrete plans and at least a reasonable compromise that protects people and the environment.

Thank you,

Don Wierbilis
Assistant Chief, Tie Siding VFD
34 Warden Trail
Boulder Ridge/Tie Siding

Documents Specific to Wildfire Risks:

Roundhouse Fire December 2020 - https://www.thecheyennepost.com/news/turbine-fire-at-new-roundhouse-industrial-wind-facility-west-of-cheyenne/article_cebaf080-423a-11eb-bebe-97b85cbceb3f.html

Cowboy fire near Evanston in late 2017 - reached over 1600 acres - imagine if this got loose on Boulder Ridge or even the damage to grazing lands... - <https://k2radio.com/cowboy-fire-in-southwest-wyoming-grows-to-roughly-1600-acres-now-70-percent-contained/>

<https://stopthesethings.com/tag/wind-turbine-fires/> - this one is more "sensational" but the fires are real. And the industry doesn't like to talk about how common they are. Tie Siding is served by a very small volunteer FD, with the next closest resources also being volunteers at least 30 minutes away.

0027-05 "The true cost of wind turbine fires and protection" <https://www.windpowerengineering.com/the-true-cost-of-wind-turbine-fires-and-protection/#:~:text=However%2C%20to%20date%2C%20the%20industry,course%20of%20its%20operational%20lifetime.> - this is an uncommonly frank article from the wind turbine industry itself - and granted, it is sponsored by a company trying to sell fire suppression systems for turbines - but that alone should make us think - this clearly is a big enough issue that a company can make a business out of selling fire suppression equipment! It also points out another huge issue - the turbines planned for the Rail Tie project will have their nacelles 100's of feet in the air. This means that fire suppression will be virtually impossible until debris falls to the ground! Imagine a burning tower 100's of feet in the air in a typical Wyoming "breeze". It could throw sparks over a HUGE area...

"Lightning discharges produced by wind turbines - Montanya - 2014 - Journal of Geophysical Research: Atmospheres - Wiley Online Library" <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013JD020225> This one is perhaps the most concerning to me - the potential for increasing lightning activity in a wide vicinity surrounding wind towers. Here is a quote from this research article: "This is a very rare type of flash not reported before and could be classified as a ground-to-cloud-to-ground flash. The relevance of which is the production of extra lightning strikes within a few tens of kilometers around tall objects, which without their presence may not have occurred."

RESPONSE(S)

Western Area Power Administration

0027-04 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about how non-native species, including cheatgrass, influence fire regime. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record.

0027-05 The Cowboy Fire was included in the analysis in the draft EIS (see section 3.16.4.2, "Ignitions"). The Roundhouse facility fire has been included in the *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) under Fire History to address this comment.

COMMENT(S)

0027: Don Wierbilis, Tie Siding Volunteer Fire Department, continued

- Other Environmental Concerns:
- 0027-06 • Threats to groundwater during turbine construction, including dewatering
 - Unregulated blasting for turbine foundations, electric lines and road modifications
 - Potential pollution of shallow aquifers
 - 0027-07 • Impinging on crucial mule deer winter range and WGF Habitat Protection Areas
 - Strong visual intrusion of towers, access roads, collection lines, destroying the character of 550 square miles of rural countryside
 - 0027-08 • Destruction of the setting for Ames Monument, the county’s only site on the National Register of Historic Places
 - 0027-09 • Insufficient setback from roads to protect against ice or blade throw
 - Insufficient setback from property lines to protect residents from noise
 - Insufficient provisions to protect against turbine flicker
 - 0027-10 • Lack of fire suppression systems in turbine nacelles
 - Over reliance on volunteer fire departments to protect against wildfire and/or provide emergency supports
 - 0027-11 • Lack of public input and planning for reconstruction of public roads to accommodate blade and component transport
 - 0027-12 • Potential damage to property value of nearby residents
 - 0027-13 • Failure to produce technical studies that predict actual turbines to be used
 - 0027-14 • No evidence of support for nighttime aircraft detection lighting systems, thus a threat to dark night skies and observatory research

RESPONSE(S)

Western Area Power Administration

- 0027-06 Comment noted. See the following sections for an analysis of these resources: section 3.15, “Wetland and Water Resources,” and section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.” ConnectGen will develop a blasting plan prior to construction if final geotechnical engineering determines blasting is necessary. Blasting would be performed in compliance with all applicable local, State, and Federal regulations by a Wyoming-licensed blaster.
- 0027-07 Comment noted. The impacts to visual aesthetics are considered section 3.2, “Aesthetics and Visual Resources.”
- 0027-08 Impacts to the Ames Monument are considered in section 3.6, “Cultural Resources and Native American Concerns.”
- 0027-09 Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” ConnectGen has designed the Project to meet the Albany County Commissioners’ Project permit condition that the turbines be set back 1.5 times turbine height plus rotor diameter from public roads (see section 2.2.6, “Environmental Protection Measures”). Ice throw risk is low. Modern turbines are equipped with a SCADA system that detects ice buildup and shuts down the turbines automatically before ice throw occurs. The Albany County wind energy siting regulations limit noise from commercial wind energy facilities to 55 dBA, as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015). Although no NSAs are within areas that would be expected to experience levels above 55 dBA, there are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between a non-participating private property and a participating property (Tetra Tech 2021c:Figure 2). Should this turbine layout ultimately be chosen for the Project, and if written landowner permission cannot be obtained for these locations, micrositing of turbines may be necessary to avoid exceeding the 55-dBA county threshold requirements in these locations. Shadow flicker is addressed in section 3.2.5.3, “Proposed Action.”
- 0027-10 – 0027-12 See page C-58 for responses.
- 0027-13 & 0027-14 See page C-59 for responses.

COMMENT(S)

0027: Don Wierbilis, Tie Siding Volunteer Fire Department, continued

RESPONSE(S)

Western Area Power Administration

0027-10 As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated into the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about the availability of additional fire resources as part of wider State and Federal dispatch and mutual aid across the region and how that bolsters local fire department response. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16 of the EIS and is available in the Project administrative record.

0027-11 Chapter 5 of the EIS describes the public involvement activities for the Project. All public comments received during the scoping period and during the comment period for the draft EIS have been considered. In addition, as stated in section 3.13.5.3, “Proposed Action,” prior to the start of construction, a Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize restrictions or closures to access (TRANS-1).

0027-12 Comment noted. The impacts to residential property value are considered in section 3.12, “Social and Economic Resources (including environmental justice).”

COMMENT(S)

0027: Don Wierbilis, Tie Siding Volunteer Fire Department, continued

RESPONSE(S)

Western Area Power Administration

0027-13

The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2. The technical reports developed by Tetra Tech were independently verified by SWCA, WAPA's third-party contractor, as the draft EIS was written. While the technical reports were used to provide baseline information for the analysis in the draft EIS, some information about the Project has been updated since they were written. In some cases, reports written as part of the NEPA process for the Hermosa West Wind Farm Project will still be valid because those resources (soil type, geology, etc.) have not changed.

0027-14

Comment noted. The impacts to night skies are considered in section 3.2, "Aesthetics and Visual Resources."

COMMENT(S)

0028: Stephen K. Durham

From: stephen durham <durhamsk@hotmail.com>
Sent: Monday, April 26, 2021 3:16 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: stephen durham <durhamsk@hotmail.com>
Subject: [EXTERNAL] Rail Tie Wind Farm

To whom it may concern:

I'm writing to you as a private citizen and homeowner in Albany County, Wyoming. I have numerous concerns for both my loved ones and the local environment. Among my concerns are:

- 0028-01 • Obvious negative impact on residential property values
- 0028-02 • Potential health issues (Wind Turbine Syndrome) for myself and other adjacent residents
- 0028-03 • Negative impact to wildlife, especially the endangered Ferruginous hawk and impingement on mule deer winter range
- 0028-04 • Negative impact on area tourism. Would you really want to see a wind farm while hiking in Vedauwoo? Please look up Vedauwoo on TripAdvisor and see all of the wonderful comments, many from individuals living outside of Wyoming.
- 0028-05 • Aviation safety
- 0028-06 • Threats to groundwater during turbine construction, including dewatering
- 0028-08 • Unregulated blasting for turbine foundations, electric lines and road modifications
- 0028-07 • Potential pollution of shallow aquifers
- 0028-09 • Destruction of the setting for Ames Monument, Albany county's only site on the National Register of Historic Places
- 0028-10 • Insufficient setback from roads to protect against ice or blade throw
- 0028-10 • Insufficient setback from property lines to protect residents from noise
- 0028-10 • Insufficient provisions to protect against turbine flicker
- 0028-11 • Lack of fire suppression systems in turbine nacelles
- 0028-11 • Over reliance on volunteer fire departments to protect against wildfire and/or provide emergency supports

RESPONSE(S)

Western Area Power Administration

- 0028-01 Section 3.12 of the draft EIS contains information on “Social and Economic Resources,” including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.
- 0028-02 Comment noted. The impacts to public health are considered in section 3.10, “Public Health and Safety.”
- 0028-03 Comment noted. The impacts to raptors and terrestrial wildlife are considered in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species”, and section 3.5, “Avian and Bat Species.”
- 0028-04 Comment noted. The impacts to visual aesthetics are considered in section 3.2, “Aesthetics and Visual Resources.”
- 0028-05 Comment noted.
- 0028-06 Section 3.15.5.3, “Proposed Action,” of the EIS addresses the concerns noted by the commenter, specifically in Issue Statements #4 and #5.
- 0028-08 Comment noted. The impacts to land and regulations related to land modification are discussed in section 3.8, “Land Use.”
- 0028-07 See response to comment 0028-06.
- 0028-09 Comment noted. The impacts to recreational/historical resources such as Ames Monument are considered in section 3.6, “Cultural Resources and Native American Concerns.”
- 0028-10 See page C-61 for response.
- 0028-11 See page C-61 for response.

COMMENT(S)

0028: Stephen K. Durham, continued

RESPONSE(S)

Western Area Power Administration

0028-10

Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” ConnectGen has designed the Project to meet the Albany County Commissioners’ Project permit condition that the turbines be set back 1.5 times turbine height plus rotor diameter from public roads (see section 2.2.6, “Environmental Protection Measures”). Ice throw risk is low. Modern turbines are equipped with a SCADA system that detects ice buildup and shuts down the turbines automatically before ice throw occurs. The Albany County wind energy siting regulations limit noise from commercial wind energy facilities to 55 dBA, as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015). Although no NSAs are within areas that would be expected to experience levels above 55 dBA, there are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between a non-participating private property and a participating property (Tetra Tech 2021c:Figure 2). Should this turbine layout ultimately be chosen for the Project, and if written landowner permission cannot be obtained for these locations, micrositing of turbines may be necessary to avoid exceeding the 55-dBA county threshold requirements in these locations. Shadow flicker is addressed in section 3.2.5.3, “Proposed Action.”

0028-11

As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated into the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a description of fire response resources and mutual aid agreements. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and is available in the Project administrative record.

COMMENT(S)

0028: Stephen K. Durham, continued

- 0028-12 Lack of public input and planning for reconstruction of public roads to accommodate blade and component transport
- 0028-13 Failure to produce technical studies that predict actual turbines to be used

- I moved from Nevada to Wyoming three years ago. I sought an area of natural beauty and tranquility. I'm asking for you to ask yourself a simple question. Would you want for yourself or one of your loved ones to wake up every morning and see a wind farm changing your way of life and obliterating the view of the Rockies? Please ask your loved ones and see what they would say.
- I would appreciate a reply that you received this correspondence.

Sincerely,

Stephen K. Durham
[63 Klondike Road](#)
[Buford, WY 82052](#)
[\(775\) 229-2492](#)

Sent from my iPad

RESPONSE(S)

Western Area Power Administration

- 0028-12 State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies, including WYDOT, which submitted comments during both scoping and the public comment period.

- 0028-13 The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2. The technical reports developed by Tetra Tech were independently verified by SWCA, WAPA's third-party contractor, as the draft EIS was written. While the technical reports were used to provide baseline information for the analysis in the draft EIS, some information about the Project has been updated since they were written. In some cases, reports written as part of the NEPA process for the Hermosa West Wind Farm Project will still be valid because those resources (soil type, geology, etc.) have not changed.

COMMENT(S)

0029: Richard Dow

From: Rick Dow <rickdow@rickdow.com>
Sent: Saturday, April 17, 2021 2:11 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project Draft EIS Public Comment

My name is Richard Dow. My email address is rickdow@rickdow.com

I suggest that significant revisions to the Draft EIS are needed. Below are some specific comments.

Comments on the Executive Summary:

The Executive Summary should be modified in several places where issues were not covered adequately.

ES 6.1 Aesthetics and Visual Resources

0029-01 I disagree with the opinion that 25 hours of shadow flicker should not be considered significant. It is significant for the residents who would be affected. There should be some mitigation at this location or else substantial compensation should be paid to the residents who would be affected.

ES 6.2 Air Quality and Climate Change

0029-02 I disagree with the scope of the analysis. Climate change analysis should also include manufacturing and transportation worldwide, including cement, steel, towers, blades, nacelles, and the mining of raw materials used in manufacturing.

ES 6.4 Avian and Bat Species

0029-03 This section states, "The Project would develop and implement eagle conservation practices..." but the eagle mitigation measures listed in the EIS are insufficient. The Eagle Conservation Plan should be written and made available for Public Comment before the EIS is finalized. The eagle mitigation measures described elsewhere in the draft EIS are inadequate.

This section also states, "while individuals may be at risk, populations are not anticipated to be affected." For eagles, I think every individual is important. It is my understanding that the killing of eagles is controlled by federal law. The Project should be required to obtain a federal permit for taking the predicted number of eagles and there should be an opportunity for Public Comment on that permit.

RESPONSE(S)

Western Area Power Administration

0029-01 Comment and preference noted.

0029-02 Lifecycle emissions can vary greatly depending on project specifications for both wind energy and energy derived from fossil fuels. We have compared the emissions at the point of electricity generation rather than the entire lifecycle, since lifecycle emissions can vary greatly depending on project specifications.

0029-03 Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCE. When developing an Eagle Conservation Plan or BBCE, it is standard practice to include adaptive management measures.

COMMENT(S)

0029: Richard Dow, continued

ES 6.5 Cultural Resources and Native American Concerns

I disagree with the last sentence in this section, "Implementation of measures specified under the PA, including a Historic Properties Treatment Plan, would resolve all adverse effects under the NHPA, satisfying the mitigation of physical and nonphysical impacts under NEPA." This statement is simply not credible regarding the Ames Monument.

0029-04 The Ames Monument is listed in the NRHP. The Cultural VIA Addendum states that, "development of the Project will result in an Adverse Effect on KOP 18, the Ames Monument" and that "Mitigation Measures are recommended." But the minimal mitigation measures proposed in the draft Programmatic Agreement (PA) are woefully inadequate. The mitigation measures proposed in the PA will not reduce the strong visual impact at all. These mitigation measures are unrelated to the main problem caused by the Project. The only adequate mitigation measure I can imagine would be to move the turbines several miles away from the Ames Monument.

ES 6.9 Public Health and Safety

0029-05 This section does not even mention the main risk to public safety - truck traffic during construction. It seems very likely that there will be an increase in vehicle collisions due all the large, slow trucks on US 287. This highway is already considered more dangerous than average.

0029-06 Fire risks are not adequately addressed in this section. Fast spreading grass fires are a special risk in this area because of strong winds and dry vegetation. The local fire departments do not have equipment to fight fires in the nacelles of such tall turbines.

0029-07 This section does not address the danger of ice being thrown from turbine blades onto nearby county roads. Mitigation measures are needed to protect the public from this danger.

ES 6.11 Social and Economic Resources (including Environmental Justice)

0029-08 This section does not address the issue of reduced opportunity for rural residential development south of Laramie. A reduction of future high-end housing in this area will have an adverse impact on economic development and tax revenues in Albany County.

0029-09 The section does not address the issue of stability of the electrical grid. The potential of sudden reductions of electrical output from such a large wind project might require mitigation, such as battery storage or natural gas generation that can be ramped up quickly.

ES 6.12 Transportation and Access

0029-10 The level of service (LOS) analysis does not consider all of the important portions of US 287.

RESPONSE(S)

Western Area Power Administration

0029-04 See page C-65 for response.

0029-05 See page C-66 for response.

0029-06 See page C-67 for response.

0029-07 See page C-68 for response.

0029-08 See page C-68 for response.

0029-09 See page C-68 for response.

0029-10 See page C-69 for response.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-04

Mitigation of impacts that could occur from the Project to the Ames Monument NHL has not yet taken place. Mitigation would be addressed in a PA, as described in the EIS (see section 3.6.5.3, “Proposed Action,” and Appendix B, “Programmatic Agreement”). As stated in the EIS (see section 3.6.5.2, “Methods of Analysis”), the PA would also address special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing the monument’s exceptional value in commemorating or illustrating the history of the United States. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project Description (see chapter 2, “Proposed Federal Action and Alternatives, and ConnectGen’s Project,” and Appendix A, “Project Description”). Avoidance of impacts through the design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed with consulting parties and pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA as impact offset, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources (although offset) could be permanent and long term. Impacts from blade movement or rotation and the vertical elements of turbines are further addressed in section 3.5.2.3, “Proposed Action.”

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-05

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-06

As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated into the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a description of fire response resources and mutual aid agreements. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and is available in the Project administrative record.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-07

Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” Although ice throw is a risk, ConnectGen has minimized that risk by designing the Project to meet the Albany County Commissioners’ Project permit condition that the turbines be set back 1.5 times turbine height plus rotor diameter from public roads (see section 2.2.6, “Environmental Protection Measures” and would equip the turbines with a SCADA system that detects ice buildup and shuts down the turbines automatically before ice throw occurs. The SCADA system includes sensors that detect ice buildup and curtail operation when this occurs.

0029-08

Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0029-09

WAPA completed a System Impact Study (WAPA 2020a) that details the requirements for the requested interconnection and associated system upgrades.

COMMENT(S)

0029: Richard Dow, continued

0029-10, continued Therefore the conclusion of "no significant impacts to transportation and access" is not justified.
The level of service (LOS) analysis should have considered US 287 from the rail yard in Laramie all the way to the project. Many intersections on US 287 within and near Laramie will be affected by additional truck traffic, but the Transportation Analysis Technical Report only considered intersections near Tie Siding.

ES 6.15 Wildland Fire
I disagree with the statement that "no significant impacts to wildland fire are anticipated."
Fast spreading grass fires are a special risk in this area because of strong winds and dry vegetation. Although grass fires are not common in this area, some of those that have occurred have spread rapidly, thus posing a significant risk to life and property. I have personally seen a grass fire in this general area that spread more than a mile in a few minutes.

0029-11 The statement that "local fire departments would respond" is a misleading representation of the difficulties of fighting fires at the project site. The Laramie fire department is many miles away. The volunteer fire departments are small and also miles away. The fire departments have no equipment to reach the nacelles on such tall towers. There is no large source of water near the project site.
Additional mitigation measures for fire should be required, such as water storage on the project site and fire extinguishing equipment built into the nacelles.

Comments on 2.2.6 Environmental Protection Measures:
CR-5 Conduct a systematic architectural inventory of the Project Area and use setbacks to reduce impacts to historic architectural resources to the extent practicable
The mitigation suggested by CR-5 is not specific enough - it allows too much wiggle room. A specific setback should be required for the Ames Monument. The setbacks shown on the maps are not adequate.

Public Health and Safety (PHS)
Additional mitigation measures should be added for fire, ice throw, and truck traffic on US 287. Refer to my comments about the executive summary for more details.

0029-13 **PHS-19** Fire suppression equipment, including a trailer-mounted tank of 500 gallons...
This amount of water is not adequate. There should be storage of thousands of gallons of water on the project site. It does not all have to be on a truck, but there should be large amounts of water storage at a fixed location somewhere on the project site so that the local fire departments won't have to truck in water from Laramie.

RESPONSE(S)

Western Area Power Administration

0029-10 Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, "Proposed Action"). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. In addition, as stated in section 3.13.5.3, "Proposed Action," prior to the start of construction, a Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize restrictions or closures to access (TRANS-1).

0029-11 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about the availability of additional fire resources as part of wider state and federal dispatch and mutual aid across the region and how that bolsters local fire department response. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and available in the Project administrative record.

0029-12 See page C-70 for response.

0029-13 See page C-71 for response.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-12

ConnectGen’s EPM CR-5 would be implemented as a preconstruction EPM (section 2.2.6, “Environmental Protection Measures,” table 2-6). As noted in EIS section 3.6.5.3, “Proposed Action,” the PA and HPTP under the PA would specify specific mitigation measures for mitigation. As stated in section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project description (see chapter 2). Avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. CR-5 would be incorporated into Project design with regard to the Ames Monument NHL. Siting corridors analyzed for turbine placement would provide a minimum 1.1-mile setback from the NHL. As stated in section 3.6.5.2, “Methods of Analysis,” of the EIS, the PA also addresses special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States. Setback measures would minimize and reduce the visual impacts to the Ames Monument NHL. However, EIS analysis of the Project action does conclude that the visual impacts caused by the Project to Ames Monument NHL, at a nearest distance of 1.1 miles for potential turbine placement, would remain strong and result in an adverse effect (section 3.6.5.3, table 3-21). Following direct avoidance of the Ames Monument NHL and minimization of visual impacts, the remaining adverse effects would be mitigated through further treatment in implementation of the PA, as described previously.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-13

Comment and preference noted. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14).

COMMENT(S)

0029: Richard Dow, continued	
	<p>Transportation (TRANS)</p> <p>Additional mitigation measures should be added. US 287 will need additional truck pullout areas or passing lanes between Laramie and the project site.</p>
0029-14	<p>TRANS-3 Road clearances may include temporarily blocking road intersections...</p> <p>The statement that "public road closures are not expected to exceed 15 minutes" is unrealistic. It will take much longer than 15 minutes for an oversized truck to drive from the rail yard in Laramie (or from I-80) to the project site.</p>
	<p>Wildlife (WL)</p> <p>WL-3 The Project will develop and implement eagle conservation practices and seek to avoid the unintentional take of eagles at wind energy facilities</p> <p>The mitigation measures proposed in WL-3 are not specific enough. The project should be required to install state-of-the-art technology to avoid taking eagles. For example there is now a system called "IdentiFlight." And the project should be required to obtain a federal permit for number of eagle-taking that can be predicted.</p> <p>WL-4 In consideration of the FWS' Land Based Wind Energy Guidelines (2012), the Project will perform postconstruction mortality surveys to calculate the fatality rate of birds and bats</p> <p>There needs to be a requirement for corrective action in WL-4, not just a calculation.</p>
0029-15	
	<p>Comments on 2.2.6.1 Project Plans:</p> <p>The plans mentioned in table 2-7 should be written and available to the public before the EIS is finalized.</p> <p>Comments on 2.3 Summary of Impacts:</p>
0029-16	
	<p>Air Quality and Climate</p> <p>Not enough analysis has been presented to justify the statement that, "The Project would generate energy from a renewable resource and would result in significantly fewer emissions than if the same amount of energy generated by fossil fuels." The Climate analysis should be expanded to include world-wide emissions from the manufacturing and transportation of components and from the mining of raw materials used in manufacturing. Only with a complete analysis could we determine whether the Climate impact would be positive or negative.</p>
0029-17	
	<p>Avian and Bat Species</p> <p>I disagree with the conclusion that, "impacts would not be significant." Injuring or killing individual</p>
0029-18	

RESPONSE(S)

Western Area Power Administration	
	<p>See response to comment 0029-04.</p>
0029-14	
	<p>Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.</p>
0029-15	
	<p>Please see the updated status of environmental-related plans in table 2-7.</p>
0029-16	
	<p>Lifecycle emissions can vary greatly depending on project specifications for both wind energy and energy derived from fossil fuels. We have compared the emissions at the point of electricity generation rather than the entire lifecycle, since lifecycle emissions can vary greatly depending on project specifications.</p>
0029-17	
0029-18	

COMMENT(S)

0029: Richard Dow, continued	
0029-18, continued	eagles is significant and they are protected by federal law. This project will almost certainly kill or injure some eagles. The proposed mitigation measures are inadequate.
Cultural Resources and Native American Concerns	
0029-19	I disagree with the statement that "Implementation of measures specified under the PA would resolve all adverse effects under the NHPA" because the mitigation measures proposed in the draft PA are far from adequate to resolve the adverse effects on the Ames Monument.
Land Uses	
0029-20	I disagree with the statement that, "The Project would not conflict with existing, applicable zoning designations, land use plans..." Albany County has designated this area as a priority growth area and this project will limit residential development near the project area.
Public Health and Safety	
0029-21	I disagree with the statement that, "The Project would not result in risks to public health and safety." There would be increased risks to public safety from truck traffic during construction, fires, and ice thrown from blades.
Social and Economic Resources	
0029-22	I disagree with the statement that, "no significant adverse socioeconomic impacts would be anticipated from the Project" because it will impact residential development near the project area.
Transportation and Access	
0029-23	I disagree with the statement that, "no significant impacts to transportation and access would be anticipated." The transportation analysis failed to consider sections of US 287 near and within Laramie. I believe there would be significant impacts to portions of US 287.
Wildland Fire	
0029-24	I disagree with the statement that, "no significant impacts to wildland fire would be anticipated." The proposed fire mitigation measures are inadequate. The project area is at risk of fast spreading grass fires. The local fire departments do not have adequate resources to control fires in this type of project.
Comments on 3.3.6 Air Quality and Climate Conclusion:	
0029-25	The Climate analysis is incomplete and therefore no conclusion regarding Climate can be reached. The Climate analysis needs to be expanded to include the worldwide manufacturing, transportation, and mining associated with the project components.

RESPONSE(S)

Western Area Power Administration	
0029-18	Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.
0029-19	See response to comment 0029-04.
0029-20	As stated in EIS section 3.8.4.5, "Agricultural Resources," the town of Tie Siding, immediately north of the analysis area, is designated as an existing PGA 3. However, Tie Siding is outside the proposed Project Area limits. The area around Tie Siding, including the analysis area, is primarily composed of lands designated as agricultural under the Albany County Zoning Resolution, which classifies wind energy projects as a permitted use.
0029-21	See page C-74 for response.
0029-22	Comment and preference noted.
0029-23	See page C-74 for response.
0029-24	See page C-75 for response.
0029-25	See page C-75 for response.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-21

The effect of the Project on traffic is analyzed in section 3.13, “Traffic and Transportation,” and the effect of the Project on wildfire is analyzed in section 3.16, “Wildland Fire.” Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” Although ice throw is a risk, ConnectGen has minimized that risk by designing the Project to meet the Albany County Commissioners’ permit condition that the turbines be set back 1.5 times the turbine height plus rotor diameter from public roads and would equip the turbines with a SCADA system that detects ice buildup and shuts down the turbines automatically before ice throw occurs. The SCADA system includes sensors that detect ice buildup and curtail operation when this occurs.

0029-23

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment. Clarifications made to the transportation analysis area (section 3.13.3, “Analysis Areas”) and assumptions (section 3.13.5.2, “Methods of Analysis”) describe the analysis of transportation resources within or near the Project Area.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-24 As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated into the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

0029-25 Using facility-specific emission modeling allowed for the consideration of reasonably foreseeable GHG emissions that would result from WAPA’s Federal action. Emissions related to the extraction of raw materials and manufacturing processes were not included in the GHG analysis for three reasons. First, extraction of raw materials and the manufacturing process are not a result of the Federal action. WAPA’s action of granting the interconnection request does not increase the market for raw materials or manufactured materials. Second, any estimate of GHG emissions would be purely speculative as there are multiple variables that are unknown with respect to the raw materials used, the extraction process, the manufacturing process, and the procurement and transportation processes. Third, WAPA lacks authority and control to deny the interconnection request based on GHG emissions related to the project.

COMMENT(S)

0029: Richard Dow, continued

Comments on 3.5.6 Avian and Bat Species Conclusion:
 0029-26 I disagree with the conclusion that, "The impacts would not be significant." Individual eagles with almost certainly be injured or killed and that is significant. The mitigation measures proposed for eagles are inadequate. The project should be required to obtain a federal permit for taking eagles.

Comments on 3.6.6 Cultural Resources and Native American Concerns Conclusion:
 0029-27 I disagree with the statement that "Implementation of measures specified under the PA would resolve all adverse effects under the NHPA, satisfying the mitigation of physical and nonphysical impacts under NEPA." The mitigation measures proposed in the PA for the Ames Monument are inadequate to resolve the strong adverse impact to the Ames Monument.

Comments on 3.8.6 Land Use Conclusion:
 0029-28 I disagree with the statement that, "no significant impacts would be anticipated to this resource." Albany County has designated the area south of Laramie is a Priority Growth Area and the project would hinder rural residential development for miles beyond the immediate project area.

Comments on 3.10.6 Public Health and Safety Conclusions:
 0029-29 I disagree with the statement that, "The Project would not result in risks to public health and safety." This statement is not even qualified with an adjective like "significant" so it implies zero risks. Surely this cannot be literally true.

0029-30 The risk of fires has not been adequately considered. The risk of ice thrown from blades onto public roads has not been considered. The greatest risk of all, highway safety on US 287, has not been adequately considered.

Comments on 3.12.6 Social and Economic Resources (including environmental justice) Conclusion:
 0029-31 I disagree with the statement that, "no significant adverse socioeconomic impacts would be anticipated from the Project". I simply do not believe that most people will choose build a new, high-end residence on the land near the project. This will decrease economic development and tax revenue for Albany County.

Comments on 3.13.6 Transportation and Access Conclusion:
 0029-32 I disagree with the statement that, "no significant impacts to transportation and access would be anticipated." The traffic analysis focused on the immediate area near the project. The analysis should have considered all of the roadway and intersections on US 287 from the railyard in Laramie to the project site. US 287 is already considered more dangerous than most highways. The large number of slow, oversized trucks will surely cause some increase in vehicle collisions.

RESPONSE(S)

Western Area Power Administration

0029-26 Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.

0029-27 See response to comment 0029-04.

0029-28 As stated in section 3.8, "Land Use," impacts to land use were considered for the Project Area and the Project would preserve existing land use, which is primarily ranchland. Section 3.12, "Social and Economic Resources (including environmental justice)," of the EIS concludes that the Project would not be expected to materially decrease the property value for nearby homes.

0029-29 Comment and preference noted. The sentence referenced by the commenter was removed for clarity in the final EIS.

0029-30 See page C-77 for response.

0029-31 Comment noted.

0029-32 See page C-78 for response.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-30

As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” Although ice throw is a risk, ConnectGen has minimized that risk by designing the Project to meet the Albany County Commissioners’ permit condition that turbines be set back 1.5 times the turbine height plus rotor diameter (see section 2.2.6, “Environmental Protection Measures”) and would equip the turbines with a SCADA system that detects ice buildup and shuts down automatically before ice throw occurs. The SCADA system includes sensors that detect ice buildup and curtail operation when this occurs. Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed.

COMMENT(S)

0029: Richard Dow, continued

RESPONSE(S)

Western Area Power Administration

0029-32

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment.

COMMENT(S)

0029: Richard Dow, continued

Comments on 3.16.6 Wildland Fire Conclusion:

0029-33

I disagree with the statement that, "no significant impacts to wildland fire would be anticipated." The proposed mitigation measures are inadequate. The area has a high risk of fast spreading grass fires due to strong winds and dry vegetation. There is no large supply of water near the project site. The local fire departments do not have adequate resources to fight this type of fire.

The project should be required to store large amounts of water on the project site. The project should be required to install fire extinguishing equipment in the nacelles.

RESPONSE(S)

Western Area Power Administration

0029-33

Proper suppression of wildland fires typically does not involve using water. A discussion of this has been included in the *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021). The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and available in the Project administrative record.

COMMENT(S)

0030: Andrew Phelps

From: aphelps.edpwater@gmail.com <aphelps.edpwater@gmail.com>
Sent: Saturday, April 24, 2021 3:01 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Jackson Hawkins <hawk.jackson145@gmail.com>
Subject: [EXTERNAL] Rail Tie Wind Project

0030-01 I am opposed to the Rail Tie Wind Project. I own a home about 2.25 miles south of some of the
0030-02 proposed locations for wind turbines. In addition to adding a fire risk to an already fire vulnerable
area, Elk migration corridors are a concern. Please do not allow the project to go forward.

Thank you,

Andrew Phelps
44 Spring Trail
Livermore, CO
Cell: 832.642.5686

RESPONSE(S)

Western Area Power Administration

0030-01 Comment and preference noted.

0030-02 Comment noted. Fire risk is considered in section 3.16, “Wildland Fire,” and migration corridors of big game such as elk are considered in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.”

COMMENT(S)

0031: Jim Field

From: JIM FIELD <mdnum1@msn.com>
Sent: Wednesday, May 5, 2021 9:24 AM
To: commissioners@co.albany.us; Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project

0031-01

Please know I am very concerned about the visual impacts from the Rail Tie Wind project...both during the day and especially at night.

I see no need for it to be in this part of the county when there are plenty of other suitable sites in the state away from major metropolitan area.

0031-02

Therefore, I do not approve of this project as proposed.

Thank you

Jim Field
623 Spring Creek Drive
Laramie, WY

745-6396

RESPONSE(S)

Western Area Power Administration

0031-01

Comment and preference noted.

0031-01

Comment and preference noted.

COMMENT(S)

0032: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Wednesday, May 12, 2021 8:58 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project: Turbine Fire Health/Safety Risk to local residents

0032-01

A turbine fire at the Rail Tie project similar to the one that occurred in 2020 at the Belvoir Ranch wind farm poses a grass fire risk. Additionally, our area is known for high winds that carry smoke and fire fast as evidenced by local wildfires. How is this location safe to the local residents when there is a risk of a turbine fire that can lead to a grass fire? The purpose section of the wind energy siting regulations needs to address safety in their review of siting locations. Wind farms are safer in industrial/commercial areas of towns not in grass prairies or tree occupied areas. Reference the KGAB report indicating that the Belvoir Ranch turbine fire would have resulted in a grass fire during the summer. Grass fires cause injury to all forms of life and property as well as air quality issues. Local residents should not be put at risk. Local emergency resources are inadequate in size for a project of this size.

0032-02

Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0032-01

The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about the availability of additional fire resources as part of wider state and federal dispatch and mutual aid across the region and how that bolsters local fire department response. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and available in the Project administrative record.

0032-02

ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices.

COMMENT(S)

0033: Richard Adler

From: Rick <electric52@yahoo.com>
Sent: Saturday, May 8, 2021 10:12 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] RAILTIEWIND WIND TURBINE PROJECT ALBANY COUNTY - COMMENT AGAINST

To whom it may concern,

- SUMMARY - YOU'RE RUINING A VIEWSHED THAT CANNOT BE RECREATED

0033-01
0033-02

• I do not support the location of the Raitiewind energy project in Albany county south of Laramie. I haven't read in the news lately about panoramic viewsheds miraculously appearing around the country. Like water, it's a resource that needs to be managed carefully because its FINITE.

0033-03

• In short, you have to ask yourself what does Wyoming offer that people in other states desire so much that they will spend their vacations and long weekends to come here AND SPEND MONEY. It's the unblemished panoramic views of mountains.

• So let's rethink the Wyoming license plate printed somewhere between 1990 - 1994 where it stated on the bottom "**Where the road ends and the west begins**". Let's make our new license plate with the phrase "**Where the road ends and the wind turbines begin**". I'm sure people will FLOCK to Wyoming with the grandiose visions in their minds of endless fields of wind turbines. Yeah I'd, travel a thousand miles for that.

• So let's crowd our state with wind turbines. I think having them on top of the snowy range is a good idea. Just think of the beautiful sunsets with silhouettes of wind turbines lining the mountain range.

Regards,

Richard Adler

159 W. Vedauwoo Rd
PO Box 71
Laramie, WY 82070

RESPONSE(S)

Western Area Power Administration

0033-01

Comment and preference noted.

0033-02

Comment noted.

0033-03

Comment noted.

COMMENT(S)

0034: Dr. Mark Carducci and Dr. Marie Gempis

From: Pete Gosar <PGosar@co.albany.wy.us>
Sent: Sunday, May 9, 2021 1:50 PM
To: Mark Carducci <carducci33@gmail.com>; Wieringa, Mark <Wieringa@WAPA.GOV>; Sue Ibarra <sibarra@co.albany.wy.us>
Cc: Heber Richardson <HRichardson@co.albany.wy.us>; Jackie R. Gonzales <JGonzales@co.albany.wy.us>; David C. Gertsch <DGertsch@co.albany.wy.us>; Jennifer Curran <jcurran@co.albany.wy.us>
Subject: [EXTERNAL] RE: Rail Tie project feedback

Good afternoon Drs. Carducci and Gempis and thank you for your detailed comments. I appreciate your perspective and I know this project will have impacts (both negative and positive) to most of the citizens of Albany County. It is fair that this will have visual impacts for those living near the project and those living further out and the EIS is clear on this. Undoubtedly, this is a complicated project and it is made more complicated by the realities associated with climate change. I hope you will stay engaged in the process and thanks again. Pete

From: Mark Carducci <carducci33@gmail.com>
Sent: Tuesday, May 4, 2021 10:03 AM
To: Pete Gosar <PGosar@co.albany.wy.us>; RailTieWind@wapa.gov; Sue Ibarra <sibarra@co.albany.wy.us>
Cc: Heber Richardson <HRichardson@co.albany.wy.us>
Subject: Fwd: Rail Tie project feedback

CAUTION: This message originated from outside the organization. Please exercise caution when clicking links or opening attachments from external sources.

Sent from my iPhone

Begin forwarded message:

From: Mark Carducci <carducci33@gmail.com>
Date: May 4, 2021 at 9:46:08 AM MDT

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0034: Dr. Mark Carducci and Dr. Marie Gempis, continued

To: RailTieWind@wapa.gov
Subject: Rail Tie project feedback

Please seriously consider the litany of appropriately, heavily weighted negatives on the proverbial ledger alongside the lesser weighted positives.

Dwelling setback (5.5x tower height) 3,248 feet (.6 mile) must be imagined—60 story building equivalent height, 8 city blocks' distance from homes.

18 x WY turbine farm average (5 mile distance) population density,
60 x National turbine farm average (5 mile distance) population density.

0034-01

Big game migration IS present and observed by our household at 122 Stevenson Road, crossing our unfenced ranch, alongside sage grouse, foxes, raptors, hawks, eagles, all of which will suffer during excavation, blasting (necessary for our and other 4 foot depth foundations), access road building, and from the turbine density, observed in other areas with smaller turbines.

EIS reports 60%+ observation points with moderate to heavy visual impacts, some of which are at Ames Monument and thruout Laramie Valley scenic entrance way.

Heavily subsidy dependent from taxpayer funds from a Federal ledger 32 trillion in the red.

0034-02

Increased fire risk in an area having already experienced multiple recent brush fires, alongside a highway deemed most dangerous of WY highway system.

0034-03

Favorable location with the proximity of the Craig transmission line access point.

Unknown customer for power and US government (fiscally described above), to fund approximately 3.3 million in revenue, if Quantum Energy Partners remains solvent and operational and if the US government remains the same.

Sincerely, Drs Mark Carducci and Marie Gempis
122 Stevenson Road, Laramie, WY 82070

Sent from my iPhone

RESPONSE(S)

Western Area Power Administration

0034-01

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federally designated or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0034-02

Comment noted.

0034-03

Comment noted.

COMMENT(S)

0035: Jackson Hawkins

From: Jackson Hawkins <hawk.jackson145@gmail.com>
Sent: Sunday, April 25, 2021 8:40 AM
To: aphelps.edpwater@gmail.com
Cc: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Re: Rail Tie Wind Project

I absolutely agree with Andrew. Also a part owner.

0035-01

Our property has been in very close proximity to multiple fires. Additionally, I am concerned about wildlife movement. Not to mention the relative inefficiency of wind power to begin with.

0035-02

This seems like a no reward-high risk proposition. Please do not allow to go forward.

-Jackson Hawkins

Sent from my iPhone

On Apr 24, 2021, at 4:00 PM, aphelps.edpwater@gmail.com wrote:

I am opposed to the Rail Tie Wind Project. I own a home about 2.25 miles south of some of the proposed locations for wind turbines. In addition to adding a fire risk to an already fire vulnerable area, Elk migration corridors are a concern. Please do not allow the project to go forward.

Thank you,

Andrew Phelps

44 Spring Trail
Livermore, CO
Cell: 832.642.5686

RESPONSE(S)

Western Area Power Administration

0035-01

Comment noted.

0035-02

Comment and preference noted.

COMMENT(S)

0036: Gary Negich

From: gary negich <gnegich@gmail.com>
Sent: Wednesday, May 5, 2021 7:41 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Support letter

To Whom It May Concern,

0036-01

I am writing in support of WAPA approving ConnectGen's request to interconnect its proposed Rail Tie Wind Project to the Ault-Craig 345-kV transmission in Albany County. I am a 36 years resident of Laramie and have been involved in the community for most of that time . I have served on 20 Non-Profit boards, including the Laramie Chamber Business alliance. Having chaired that twice. I have also served at the State level on the Leadership Wyoming board for 13 years and the Wyoming Business Council for 6. Co-Chairing that with Governor Mead. I was also the President of First Interstate Bank in Laramie for 21 years and recently retired. My view on this project is much the same as most people who want the "Greater Good" for Albany County. As clearly described in the 357-page document there is not compelling support to denying the connection based on any findings in the EIS. As noted in the public hearing and EIS the only significant impact of the project is to the viewshed in that area. Which impacts a few not the majority. However, because wind turbines are already visible on 287 north of Laramie and on I-80 West of Laramie the viewshed impact is less of an issue. The viewshed impact is far outweighed by economic gains, adding long term jobs and much needed tax revenues for the county and schools. The EIS adequately covers the 14 areas of impact finding all acceptable except the viewshed. This is appropriate and the connection by WAPA should be approved.

0036-02

Thank you,

Gary Negich
307-760-4205

Sent from [Mail](#) for Windows 10

RESPONSE(S)

Western Area Power Administration

0036-01

Comment and preference noted.

0036-02

Comment and preference noted.

COMMENT(S)

0037: Dennis and Brenda Bundy

From: Dennis Bundy <Briarpatch25@centurylink.net>
Sent: Tuesday, May 4, 2021 10:22 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Wind farm

Hello my name is Dennis Bundy and I own a cabin and property at warden trail and use Cherokee park road and Boulder ridge road I have been there for 21 years and enjoy the peace and quiet, as well as the abundant of wildlife.

0037-01
0037-02

I am very concerned about road traffic and impact to the wildlife in the project area and surrounding areas. The elk use the area just below the snow flea ranch during the winter months and I am wondering what the impact will be to those herds. I am not in support of the project after reading all of the reports

Dennis & Brenda Bundy

Sent from my iPhone

RESPONSE(S)

Western Area Power Administration

0037-01

Comment noted. See section 3.4.5.3, “Proposed Action,” for an analysis of impacts to big game from the construction and operation of the Project.

0037-02

Comment noted.

COMMENT(S)

0038: Will Ames

From: William Ames <wames09@gmail.com>
Sent: Wednesday, May 12, 2021 2:49 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Wind project near Ames monument

Good afternoon,

0038-01

I am writing out of concern for a proposed wind power project to be placed near the Ames Monument. Aside from my personal beliefs that wind power is not efficient and does more harm than good, I would kindly ask you to reconsider the location out of respect for the Monument and its cultural significance to US history. Thank you.

Will Ames

RESPONSE(S)

Western Area Power Administration

0038-01

Comment noted.

COMMENT(S)

0039: Mark Gordon, Governor of Wyoming



May 14, 2021

Mark Wieringa
Environmental Protection Specialist
Western Area Power Administration, Headquarters Office A9400
P.O. Box 281213
Lakewood, CO 80228-8213

Dear Mr. Wieringa,

Thank you for the opportunity to submit comments regarding the Western Area Power Administration (WAPA)'s ConnectGen Albany County LLC Rail Tie Wind Project (Rail Tie) Draft Environmental Impact Statement (DEIS). The Rail Tie Wind Project is similar to other energy projects and stands to present a unique economic opportunity for the State of Wyoming and Albany County but it will have impacts that must be addressed.

Like all energy, wind generation provides economic benefit to the people of Wyoming. Most recently during the COVID-19 economic depression, many wind projects continued to be built or updated, supplying short-term construction jobs, sales and property tax. Wyoming looks to all good-paying, executive, manufacturing, and management capacities to attend the development of our wind resources. Wyoming also encourages opportunities for the diversification of revenue streams for private landowners and state-owned lands. Yet the net benefits of wind development can only be optimized if the associated projects are sited, constructed, and operated in a responsible manner that does not result in irreparable adverse impacts to existing resources across the landscape.

Wind energy development in Wyoming must be done with care, with an appreciation for the benefits and the impacts of development including their lasting contribution to Wyoming's current and future residents. As I stated in my January 30, 2020 EIS scoping comment letter, the Rail Tie Wind Project area and its surroundings include a high concentration of valuable resources, such as recreational, scenic, wildlife, cultural and historic resources on public and private lands. I have also heard a great deal of concern from local residents about the project's potential long-standing impacts to the visual landscape. I am also concerned with potential issues on account of the waste generated upon wind turbine decommissioning.

Understandably, the construction and operation of this project spells major changes to the landscape for the people who live and recreate within and around the project area, and there will undoubtedly be impacts to varying degrees. In that regard, and knowing that opportunities to lessen impacts will be identified through design features or practices that are not tied to WAPA's

0039-01

0039-02

RESPONSE(S)

Western Area Power Administration

0039-01 Comment noted.

0039-02 Comment and preference noted.

200 WEST 24TH STREET
CHEYENNE, WY 82002-0010

MARK GORDON
GOVERNOR OF WYOMING

307.777.7434 • GOVERNOR@WYO.GOV
HTTP://GOVERNOR.WYO.GOV

COMMENT(S)

0039: Mark Gordon, Governor of Wyoming, continued

Mark Wieringa
Western Area Power Administration
May 14, 2021
Page 2

NEPA decision, I hope that the public comment process will lend valuable insight for the project proponent to further identify opportunities to best mitigate adverse resource impacts.

In terms of other resource impacts, I appreciate that the project proponent ConnectGen has worked with the Wyoming Game and Fish Department throughout the development phase of the proposed project to establish wildlife survey protocols, environmental protection measures, and wildlife monitoring plans. I expect that the final development plan will incorporate measures that reduce quantified impacts to terrestrial wildlife and aquatic resources. I also look forward to seeing continued progress on cultural and historic preservation issues as part of WAPA's National Historic Preservation Act Section 106 consultation with the Wyoming State Historic Preservation Office.

Please refer to individual agency comments for further discussion of specific resource topics relative to their missions. I commit that the State of Wyoming can be a partner in how to balance the interests of all who are affected by this project.

Sincerely,



Mark Gordon
Governor

MG:bc:kh

cc: Pete Gosar, Chairman, Albany County Commission

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0040: Randy Tepler

May 5, 2021

Mark Wieringa
WAPA
Hdqtrs Office A9402
PO Box 281213
Lakewood CO 80228-8213

RE: Questions and comments on Rail Tie Wind Project

0040-01

I object to this project because of the very very weak analysis of the impacts in the Draft EIS for the Rail Tie Wind Project.

Here are the questions I have. Some questions are marked with Q? Others are not.

Please answer them all.

Please Fix the glaring error e.g. no field analysis of soils, no existing conditions in some sections, no cumulative effects, no plans (erosion & rehab, etc.) that need to be written before a conclusion of no impacts is determined, no definition of impacts, etc.

Randy Tepler
130 Lake Hattie Rd
Laramie WY 82070

i1otto1i@hotmail.com
307 287-1314

②

RESPONSE(S)

Western Area Power Administration

0040-01

Comment and preference noted.

COMMENT(S)

0040: Randy Tepler, continued

I object to this project based on the EIS. This EIS is garbage. There is paragraph after paragraph after page after page of regulation, but no actual analysis.

I have written some questions about the analysis but there are so many things that are weak or nonexistent.

For instance throughout the document you write we will avoid impacts to this or that resource, to the extent practical, or will take care to avoid, or to extent possible but have no way of deciding, that someone could measure, what the extent possible is.

0040-02

Here's a question. How do the writers of the EIS know what your equipment operators think the extent possible is?

Without something in writing as to how you determine the extent possible or the smallest foot print practicable it is arbitrary. Also it can be capriciously applied.

③

RESPONSE(S)

Western Area Power Administration

0040-02

Comment noted.

COMMENT(S)

0040: Randy Tepler, continued

0040-03 1.1 p. 1-1
 Purpose & need
 It says WAPA has to consider Connect Gren's request to inter connect. It does not say the wind farm has to be the size yoo propose.
 Q? Why were other alternatives of a different size wind farm not considered?
 2.2.1 P. 2-3
 You mention other environmentally sensitive area and that as these other areas will not be impacted to the extent practical.

0040-04 Q? What is a sensitive area? Where did your definition come from? Why did you use that definition?
 What metric would you use to determine the "extent practical." Where does the metric come from? What is the science behind the metric?

④

RESPONSE(S)

Western Area Power Administration

0040-03 As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to the agency's transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

0040-04 Environmentally sensitive areas are defined in table 2-6, environmental protection measure GEN-2 as wetlands, waters, and habitats. Environmentally sensitive areas will be identified in construction planning documents. Please see table 2-6 for details.

COMMENT(S)

0040: Randy Tepler, continued

2.2.6 EPMs

HAZ – 2 P. 2-22

0040-05 Care will be taken . . . to avoid . . .

Q? Will they be avoided or will just care be taken to avoid? How would “care” be measured?

Geo-1 P. 2-25

Q? What is the metric used to determine the minimum amount necessary? Where does the metric come from (e.g. science behind metric)? How will this be measure to insure the “minimum amount” is the minimum amount?

0040-06

Geo-4 P. 2-25

Q? Define topsoil? As your soil scientist knows topsoil is not a depth from the surface. Who will determine what is topsoil? and how deep it goes?

Geo-5

The erosion control plan needs to be in the EIS so it can be analyzed and commented on.

Q? How did your specialists analyze an erosion control plan you don’t have?

⑤

RESPONSE(S)

Western Area Power Administration

0040-05

ConnectGen will develop a Spill Prevention, Control, and Countermeasures Plan prior to construction and will store hazardous materials to minimize potential effects on the surrounding environment. Please see table 2-6, ConnectGen’s Environmental Protection Measures, and table 2-7, ConnectGen’s Future Environmental-Related Plans, for details.

0040-06

Acre of disturbance anticipated to construct Project facilities, which has been used to analyze impacts from the Project, is described in section 2.2, “ConnectGen’s Rail Tie Wind Project.” The indicator (i.e. metric) used is acres of disturbed ground (see section 3.7.5.1, “Impact Indicators”). ConnectGen would detail these areas for disturbance with the landowners who manage the lands affected. Topsoil is the uppermost or surface layer of the soil profile that is used by vegetation and contains the majority of organic matter and seed stock. Topsoil to be stockpiled would generally be set by the construction contractor at a standard depth from surface and may be adjusted for site-specific conditions. An erosion control plan would be prepared upon completion of final engineering and would adhere to the requirements of WYDEQ construction stormwater permitting. These requirements were used to complete analysis in the EIS in lieu of the plan.

COMMENT(S)

0040: Randy Tepler, continued

0040-07

Veg-6 P. 2-27

What if weeds exceed preconstruction levels?

Veg-1

Reclamation plan needs to be in EIS so it can be evaluated.

Q? How are your specialists analyzing a plan you don't have?

WQ-1 P. 2-28

Q? Which will it be avoid adverse effects or minimize?

WQ-2

0040-08

Q? So you're saying a wetland that potentially will be disturbed is going to have all woody veg cut?

WQ-3 Fabric matting does not avoid compaction. It can lessen compaction.

Q? How come your specialist doesn't know this?

Q? How the minimum necessary be measured?

⑥

RESPONSE(S)

Western Area Power Administration

0040-07

ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution.

COMMENT(S)

0040: Randy Tepler, continued

0040-08,
continued

WQ-6 P 2-28

Q? All wetlands & water bodies? Each of these erosion control measures has pro & cons. How will it be decided which to use and who will make the decision? Also what methodology will these be installed with?

WQ-10 P. 2-28

Q? Why can no water collect in a borrow pit? So you are going to dig a ditch to drain away the water creating more soil disturbance?

WQ-12 P2-29

Q? What does near mean? I thought you were going to install erosion control by water resources. So why would this measure be needed. I thought you were going to take "care" to avoid placing material in wetlands?

0040-09

WL-1 P. 2-29

Q? Define Feasible? Define avoided" Shouldn't there be a set distance for nests?

⑦

RESPONSE(S)

Western Area Power Administration

0040-08

The EPMs listed in section 2.2.6, "Environmental Protection Measures," of the EIS, including WQ-1, have been developed by ConnectGen to avoid, or minimize if avoidance is not possible, the effects on natural resources. Avoidance is preferable but not always possible or practicable. If an area of a wetland would be disturbed, WQ-2 commits that root systems of woody vegetation would be left intact; this does not mean that all woody vegetation in a wetland would be cut. WQ-3 refers to prefabricated matting (often referred to as timber matting) to avoid rutting, compaction, and other ground disturbance in wetlands. WQ-6 would be implemented according to the construction stormwater permit and associated SWPPP using methodologies approved by WYDEQ. Per WQ-10, borrow pits would be designed and sited so that water will not collect, which generally includes siting on shallow slopes so that one side of the pit remains at ground level to allow for drainage. It is conceivable that a drainage ditch could be incorporated into the design. WQ-12 notes an aspect of compliance with the construction stormwater permit and accounts for the previous placement of erosion-control measures. This commitment would work in concert with the other measures.

0040-09

Timing of construction activities is dependent on a number of variables, including winter weather conditions, established restrictions for natural and cultural resources, and manufacturing and economic conditions. ConnectGen has committed to implementing measures to avoid impacts to nesting birds such as pre-construction nest surveys (see section 2.2.6, "Environmental Protection Measures"). Setbacks would be determined relative to site conditions and type of activity.

COMMENT(S)

0040: Randy Tepler, continued

2.3

Summary of Impacts (table)

0040-10 Q? How do you define an impact: Where does that definition come from (e.g. what is the science)? Why did you chose that definition?

Geo & Soils P 2-36

Impacts to “unique or productive” soils would be limited . . . ≈ a 64 ac. of prime farmland, yada, yada.

0040-11 Why did you chose only prime farm land as an “unique or productive soil?”

All soils are productive. Most soils are unique. Example is your “soil scientist” ~~says~~ writes that the soil map unit Boyle – Rock outcrop, complex occurs in the analyse area. This soil series is probably only found in Colorado & Wyoming. If that does not make it unique soil what would?

Wildland Fire P. 2-39

0040-12 Increasing the potential to start a wildland fire is not an impact to wildland fire. The impact is to natural resources in the area.

8

RESPONSE(S)

Western Area Power Administration

0040-10 Indicators of impact are described for each resource group in chapter 3.

0040-11 “Unique farmland” is a U.S. Department of Agriculture designation for land with soils other than prime farmland that is used for the production of specific high-value food and fiber crops. “Prime farmland” and “farmland of statewide importance” are U.S. Department of Agriculture designations given to soils with physical and chemical characteristics that make those soils important to producing high yields of crops. No other soil types within the analysis area have special designations for being unique or productive.

0040-12 Comment noted.

COMMENT(S)

0040: Randy Tepler, continued

The soil analysis is nothing but tables. Your specialist/soil scientist didn't even go the field to verify anything.

I know without a doubt that courts of law have found/determined that you must go to the field and do an analysis for a NEPA document for soils.

In the soils report there is no existing condition. Ditto for wetlands or streams/creeks.

I would ask are the soils and wetlands functioning properly? E.G. are they already disturbed and if so how?

You say/write this is a good site for the wind farm because the soils are resistant to wind erosion, and or to erosion in general. Where in the world does that come from? Cite some scientific literature.

It sounds like bull crap to me you made up.

9

0040-13

RESPONSE(S)

Western Area Power Administration

0040-13

See page C-100 for response.

COMMENT(S)

0040: Randy Tepler, continued

0040-13, continued
 You write there is only a small amount of soil that has a low resistance to erosion.
 Any are w/a computer and a little knowledge can go to the Web Soil Survey and see that there many activities that create high erosion in the area e.g. native roads.
 Question: does your soil scientist even know what a Boyle-Rock outcrop complex, 5 to 25 percent slopes, is?
 How is the decision maker the one who says this is good supposed to know what this means? There is no explanation.
 0040-14
 Question: What is an impact? How did you decide on this definition? Why did you chose the definition, for any resource?
 Q? Is soil compaction an issue impact? Is loss of productivity of the soil an impact?
 Q?: Are there any regulations/acts, etc that are for soil?

⑩

RESPONSE(S)

Western Area Power Administration

0040-13
 The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution. Existing soil conditions were derived from SSURGO (NRCS 2020) and summarized and presented in section 3.6.4.3, “Soils” (see table 3-22). An analysis of Project impacts to soil erosion is discussed in section 3.6.5.3, “Proposed Action, Issue Statement #4.” As described therein, an Erosion Control Plan would be developed prior to construction and be in compliance with the SWPPP, as approved by WYDEQ, and in compliance with measures outlined in the WYPDES construction stormwater permit.

0040-14
 ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution. As stated in section 3.7.6, “Geology, Soil, and Mineral Resources Conclusion,” the Project is in areas with soils appropriate for construction and would be designed and constructed so as not to increase the likelihood of geologic hazards or soil erosion. Please see section 3.7, “Geology, Soil, and Mineral Resources,” for a complete analysis of geology, soil, and mineral resources, including a description of impact indicators and a summary of relevant Federal and State regulations.

COMMENT(S)

0040: Randy Tepler, continued

You have no monitoring plan to make sure the EMPs are in place or working.

Q? What if your rehab of areas fails?

What is considered success for your nonexistent rehab plan?

0040-15

Most of your analysis is, "There will be impacts but we will use EMPs to reduce it so it will be OK. No analysis of what the impact is, how large it is, is it a beneficial impact, benign impact or detrimental.

For instance there will be soil erosion by a stream or wetland but we have erosion control so it won't exceed standards/thresholds etc. No analysis of how much will erode and how much the EMPs will reduce the sediment and how much will reach the stream/wetland No scientific literature or monitoring or erosion control cited. Why??

①

RESPONSE(S)

Western Area Power Administration

0040-15

ConnectGen will plan, coordinate, and conduct each of the Project phases in a manner that protects the quality of the environment. ConnectGen will comply with applicable federal, state, and local laws, regulations, permits, and ordinances related to environmental protection. ConnectGen will develop and implement the environmental-related plans to adhere to these Environmental Protection Measures and to avoid or minimize adverse effects on environmental resources from construction, operations and maintenance, and decommissioning. ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution. An Erosion Control Plan will be developed prior to construction and be in compliance with the SWPPP as approved by WYDEQ and in compliance with measures outlined in WYPDES construction stormwater permit.

COMMENT(S)

0040: Randy Tepler, continued

Q? How much erosion/sediment reaching a wetland/stream is harmful to the function of a wetland/stream?

Without that how do you know the disturbance will create enough erosion/sediment ~~tha~~ so that you need to apply EMPs.

0040-16

Some erosion controls (silt fences) create soil disturbance. If an analysis shows not enough sediment will be created ~~why~~ to be harmful why disturb the soil putting it in?

Q?: How are you measuring if the impacts to wetlands are detrimental? You have no baseline.

Q?: Why did you chose only impacts to farm land as the only impact to soils???

⑫

RESPONSE(S)

Western Area Power Administration

0040-16 See page C-103 for response.

COMMENT(S)

0040: Randy Tepler, continued

- 0040-16, continued Q?: Does the person who wrote the soils section have a major or minor degree in soil science? If not would you consider use of this person the best available science?
- 0040-17 Q?: You mention adverse impacts, & just plain impacts.
Is removing the soil (approx. 20-40") digging into bedrock approx 12 pouring concrete in the for a wind mill base, removing some of the concrete putting back 36" of soil considered an detrimental impact to soil? or even an impact in general. If so where is the analysis?
If the soil is 20" or less and your then putting 3' back will that change the plant community? Cite references
- 0040-18 Q? If soil is compacted in a wetland how are you determining if it is not a detrimental impact to the hydrology of the entire wetland or ~~What specialist~~ the plant community of the soil product[illegible]
What specialist are using to evaluate the soil impacts in the wetland? I see no analysis of what the compaction or disturbance of the soils in wetland means to the wetland. Just there will be an impact not what it is or what it means?

13

RESPONSE(S)

Western Area Power Administration

- 0040-16 Please refer to section 3.15.5.3, "Proposed Action," for a complete discussion of wetland and water resources. ConnectGen has committed to avoiding and minimizing adverse effects on wetlands and waterbodies (WQ-1). Although the analysis area crosses 9.9 acres of potential wetlands, the EIS states, "Impacts to wetlands are anticipated to exceed 0.5 acre. If Project impacts result in dredge or fill activities in wetlands or waterbodies, ConnectGen will comply with Section 404 permitting requirements for any potential impacts to wetlands and/or WOTUS." Because of the small area of potential impacts, soil impacts in wetlands are expected to be minimal. An Erosion Control Plan will be developed prior to construction and be in compliance with the SWPPP, as approved by WYDEQ, and in compliance with measures outlined in the WYPDES construction stormwater permit. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.
- 0040-17 As stated in section 3.7.6, "Geology, Soils, and Mineral Resources Conclusion," the soils in the Project Area are appropriate for construction, and the Project would be designed and constructed so as not to increase the likelihood of geologic hazards or soil erosion. Please see section 3.7, "Geology, Soil, and Mineral Resources," for a complete analysis of geology, soil, and mineral resources.
- 0040-18 ConnectGen has committed to avoiding and minimizing adverse effects on wetlands and waterbodies (WQ-1), including the use of prefabricated mats to avoid soil compaction in any wetland areas requiring disturbance (WQ-3). Please refer to section 3.15.5.3, "Proposed Action." Although the analysis area crosses 9.9 acres of potential wetlands, the EIS states that "Impacts to wetlands are anticipated to exceed 0.5 acre. If Project impacts result in dredge or fill activities in wetlands or waterbodies, ConnectGen will comply with Section 404 permitting requirements for any potential impacts to wetlands and/or WOTUS." Because of the small area of potential impacts, soil impacts in wetlands are expected to be minimal, and detailed analyses were not performed.

COMMENT(S)

0040: Randy Tepler, continued

0040-19

Your water resources analysis cites a previous report.

Q? How do you the methodology that was used during that study was valid? Did you verify if that analysis was accurate?

You write the analysis area for wetlands extends 300 ft outside the wetland boundary. Yet there is no mention of the condition of those areas.

I could show many many more errors in this EIS but I am not going to waste my time.

I object because there is basically no analysis and B.S. galore.

[signature]

Randy Tepler
130 Lake Hattie Rd
Laramie WY 82070
307 287-1314

At least do a decent analysis. Which you didn't!!

14

RESPONSE(S)

Western Area Power Administration

0040-19

SWCA conducted an independent review on behalf of WAPA, including references to other published studies and available data relevant to the area, to determine if the previous study was valid. The EIS analyses used the baseline information provided but were conducted by SWCA separately from the analysis contained in the technical reports. The analysis area for wetlands and other water resources extends 300 feet beyond the siting corridors considered for potential placement of Project facilities, not the area noted by the commenter (see section 3.15.3, "Analysis Area," of the EIS).

COMMENT(S)

0041 (email) and 0078 (mail): Doug Miyamoto, Wyoming Department of Agriculture



Mark Gordon, Governor
Doug Miyamoto, Director
2219 Carey Ave. • Cheyenne, WY 82002
Phone: (307) 777-7321 • Fax: (307) 777-6593
Web: agriculture.wy.gov • Email: wda1@wyo.gov

The Wyoming Department of Agriculture is dedicated to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life.

May 13, 2021

Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
PO BOX 281213
Lakewood, CO 80228-8213
RailTieWind@wapa.gov

Dear Mr. Wieringa,

Following are the Wyoming Department of Agriculture's (WDA) comments pertaining to the Rail Tie Wind Project Draft Environmental Impact Statement (EIS).

Our comments are specific to our mission within state government: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources, and quality of life. As this project impacts our agriculture industry, our natural resources, and the welfare of our citizens, we believe it is important you continue to inform us of proposed actions and decisions and continue to provide us the opportunity to express pertinent issues and concerns.

We support private landowner rights and responsible wind energy development that empowers private landowners to develop and implement renewable energy in ways to sustain their agriculture operations and way of life. The EIS has analyzed the potential impacts on current agriculture operations in the project area. We encourage the project proponents to work closely with the private landowners in the area on vegetation reclamation in order to select the best possible seed mixes benefiting the landowners and their operations. In addition to reclamation, we recommend the proponent work with landowners to monitor and eradicate invasive and undesirable weeds in the project area.

In conclusion, thank you for the opportunity to comment. If you have any questions or concerns please contact Scott McDonald, Policy Analyst, scott.mcdonald@wyo.gov or 307-777-7024.

Sincerely,

Doug Miyamoto
Director

DM/sm

CC: Governor's Policy Office
Wyoming Board of Agriculture
Wyoming Farm Bureau Federation
Wyoming Association of Conservation Districts

Wyoming Game and Fish Department
Wyoming County Commissioners Association

Equal Opportunity in Employment and Services

BOARD MEMBERS

Jana Ginter, District 1 • James Rogers, District 2 • Shaun Sims, District 3 • Amanda Hulet, District 4 • Mike Riley, District 5
Vacant, District 6 • Larry Krause, District 7

YOUTH BOARD MEMBERS

Landon Hoffer, Southeast • Jared Boardman, Northwest • Hadley Pape, Southwest • Cameron Smith, Northeast

0041-01

RESPONSE(S)

Western Area Power Administration

0041-01

ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution. Coordination between the weed management contractor and host landowners regarding specific treatment methods on their respective properties would occur (VEG-7), and any herbicide used as part of vegetation management activities would follow label instructions and relevant Federal, State, and local laws. Additionally, a preconstruction survey of the Project footprint would be conducted to identify existing locations of noxious weeds; any locations delineated would be identified in a Weed Management Plan, and appropriate controls would be applied to Project activities in these areas (VEG-5).

COMMENT(S)

0042: Jennifer Zygmunt, Wyoming Department of Environmental Quality



Mark Gordon, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



Todd Parfitt, Director



May 12, 2021

Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
P.O. Box 281213
Lakewood, CO 80228

Via: RailTieWind@wapa.gov

Re: Rail Tie Wind Draft Environmental Impact Statement

Dear Mark,

Thank you for the opportunity to review and provide comments on the Rail Tie Wind Project Draft Environmental Impact Statement (DEIS). In accordance with Title 35, Section 11 of the Wyoming Statutes, the Wyoming Department of Environmental Quality/Water Quality Division (WDEQ/WQD) is responsible for the protection and restoration of the quality of waters of the state. The WQD also implements portions of the federal Clean Water Act, including development of surface water quality standards, identification of impaired waters, and development of total maximum daily loads for impaired waters under Section 303; inventorying water quality under Section 305; discharge permitting under Section 402; water quality certifications under Section 401; and addressing nonpoint sources of pollution under Section 319.

WDEQ/WQD provided comments on the EIS prep plan in April 2020 and the cooperating agency DEIS in November 2020 to help facilitate the review of potential impacts to water quality and ensure that the project analysis accurately reflects and adheres to Wyoming's Water Quality Rules. WDEQ/WQD's comments included recommendations for additional information and clarification regarding Wyoming's water quality rules, WDEQ/WQD's Clean Water Act Section 401 certification process, temporary turbidity waivers, wetland mitigation, and spill reporting. The Western Area Power Administration (WAPA) addressed all of WDEQ/WQD's previous comments in the DEIS released for public comment. WDEQ/WQD appreciates WAPA's efforts to address these comments. Please contact Madeleine Hamel at madeleine.hamel@wyo.gov or 307-777-7050 for questions or additional information.

Sincerely,

Jennifer Zygmunt
Interim Administrator
Water Quality Division

200 West 17th Street, Cheyenne, WY 82002 · <http://deq.wyoming.gov> · Fax (307)635-1784

ADMIN/OUTREACH (307) 777-7937 ABANDONED MINES (307) 777-6145 AIR QUALITY (307) 777-7391 INDUSTRIAL SITING (307) 777-7369 LAND QUALITY (307) 777-7756 SOLID & HAZ. WASTE (307) 777-7752 WATER QUALITY (307) 777-7781

RESPONSE(S)

Western Area Power Administration

0042-01

0042-01

Comment noted.

COMMENT(S)

0043: Jack and Marjorie Bedessem

May 16, 2021

Mr. Mark Wieringa
Western Area Power Administration
Headquarters Office, A9402
P.O. Box 281213
Lakewood, CO 80228-8213

Via Email: RailTieWind@wapa.gov

Subject: Comments on Draft EIS for the Proposed Rail Tie Wind Farm

Dear Mr. Wieringa,

We are rural residents of Albany County with our home located south of Laramie and just east of The Buttes subdivision. The residential properties and landforms in this area are very special and unique. We do not generally get involved with political or development matters, but feel the need to present our comments on the draft EIS and express our very sincere and serious concerns regarding the proposed wind farm near Tie Siding, WY.

Our comments and questions relative to specific sections of the draft EIS are presented in the attached document. We also strongly encourage you to consider the following:

0043-01

- The recently released Nature Conservancy “Site Wind Right” model does not identify the area south of Laramie as suitable place for wind energy development. The preparers and reviewers of this draft EIS should check it out and compare conclusions.

0043-02

- Hwy 287 is a major scenic corridor into and out of Laramie. We have heard many times from visitors, clients, employees, recruits and travelers that the passage between Tie Siding and Colorado was an amazingly beautiful drive. The construction of a mega-scale wind farm will ruin this scenic corridor for many years and leave a terrible impression on residents, tourists and potential employees.

0043-03

- Laramie is experiencing some of the economic growth expanding northward from the Colorado Front Range, particularly south along Hwy 287. We believe driving north through the tunnel of a wind farm along our special Hwy 287 corridor will detrimentally affect the attractiveness of our community to prospective businesses and future homeowners. All our neighboring states are experiencing population growth from those individuals who want to escape more crowded coastal areas for the small-town lifestyle. Wyoming is a large state with only a very few communities – there must be other locations for wind development that are more remote and would not detrimentally impact the growth of our “Gem City” and the large number of residents who live within commuting distance.

0043-04

- As mentioned, there are numerous rural residents and subdivisions located in close proximity and within view of the proposed windfarm. These rural residents and subdivisions invested and live just outside of Laramie because they prefer open spaces and the natural beauty of our unique surroundings. The proposed wind farm would devastate the happiness, dreams, lifestyle and investments of these rural residents.

RESPONSE(S)

Western Area Power Administration

0043-01

Comment noted.

0043-02

Comment and preference noted. Section 3.2, “Aesthetics and Visual Resources,” considers impacts to scenic quality, including the U.S. 287 corridor.

0043-03

WAPA’s role is to consider the interconnection request submitted by ConnectGen. Because WAPA did not receive an interconnection request related to facilities in other locations in Albany County or the State of Wyoming, no other locations were evaluated. As stated in section 3.8, “Land Use,” impacts to land use were considered for the Project Area and the Project would preserve existing land use, which is primarily rangeland. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS concludes that the Project would not be expected to materially decrease the property value for nearby homes. For more information on the effects of the Project on economic conditions, please see section 3.12, “Social and Economic Resources (including environmental justice).”

0043-04

Comment and preference noted.

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued

0043-05

- We are affiliated with a number of service organizations and a thriving business that has been headquartered in Laramie for over 36 years. The success of local organizations, businesses and public institutions (e.g. UW, LCCC, ACSD, etc.) rely on being able to recruit and retain committed and qualified employees, which can be challenging in Laramie. Those employees who choose Laramie, do so because of the abundance of outdoor activities and beauty of the high plains and surrounding mountains. This proposed wind farm may benefit a few, but will negatively impact many residents/employees, make recruiting/retention even more difficult and ultimately impair the viability of many of these entities.

Thank you for the opportunity to review and provide comments on the draft EIS. However and with all due respect, we have reviewed many draft EISs and similar reports, and we do not believe that this particular EIS was adequately prepared. There are many poorly evidenced conclusions that warrant reexamination, as mentioned in our attached comment memo.

0043-06

In closing, we do believe there are more suitable locations to build and operate a wind farm in Albany County, but the special area between Boulder Ridge, Tie Siding and Ames Monument is not one of them. **We are proud of where we live and want responsible economic development, but we need to do it right.** Therefore, we urge WAPA to make a determination of no connection action sooner than later.

Please feel free to contact us if you would like to discuss, have questions or need additional information. Sincerely,

Jack Bedessem, P. E.
jbedessem@trihydro.com
307-760-9966
75 Butte Loop
Laramie, WY 82070

Marjorie Bedessem, P.E.
mbedessem@trihydro.com
307-760-5645

Attachment: Memo - Comments and Questions on Draft EIS, 5 pages

RESPONSE(S)

Western Area Power Administration

0043-05

National Survey of Attitudes of Wind Power Project Neighbors (Hoen et al. 2019) presents findings of a 4-year project to collect data from a broad-based and representative sample of individuals living near wind power projects in the U.S. Results of the study indicate a variety of responses—both positive and negative—from individuals in communities where wind power projects are located. The study found that attitudes about wind projects are negatively correlated with hearing the turbines, perceptions that the turbines fit poorly within the landscape or that they negatively affect property values, and attachment to the local community. The study found attitudes were positively correlated with respondents being compensated, perception that the planning process was fair, and perception that wind power is effective at combating climate change. Notably, the study found that individuals who moved to a home after wind project construction had “significantly more positive attitudes [regarding the wind project] than those who lived in their homes prior to construction.”

0043-06

Comment and preference noted.

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued

To: WAPA
 From: Jack and Marge Bedessem
 Re: Comments and Questions on Draft EIS, Proposed Rail Tie Wind Project
 Date: May 16, 2021

Executive Summary (ES) 6.1 Aesthetics and Visual Resources, page ES-vi, and 3.2.6 Aesthetics and Visual Resources Conclusion, page 3-14. Based on the overall analysis of these issues, the introduction of wind turbines and associated infrastructure would result in significant impacts as compared to the characteristic landscape.

0043-07

Comment/Question – How will WAPA or ConnectGen be mitigating the “significant impacts” to aesthetics and visual resources and compensating affected parties? We believe the significant daytime impacts cannot be mitigated, and this is an important basis for selecting the no action alternative. The viewshed would be dramatically changed for the remainder of our lifetimes. The draft EIS analysis talks about impacts in terms of the number of acres and the number of KOPs that would be impacted. Since KOPs are not all created equal, it would be helpful if the draft EIS could include an extrapolation to numbers of people in the KOP-associated sensitive viewer groups, so it would be easier to fully comprehend how many people this change in the characteristic landscape would impact.

ES 6.10 Recreation Resources, page ES-xi. As a result, hunting opportunities within the Project Area would be temporarily degraded. Once construction and decommissioning activities are complete, it is anticipated that big and small game would return to the area. Increased demands on recreation resources from Project workers would not exceed the capacities or availability of existing recreation resources. Based on the analyses of these issues, no significant impacts would be anticipated to recreation resources.

0043-08

Comment/Question – What is the duration of “temporarily degraded”? If it is the +/-30 year lifecycle of the proposed project, than that is more than temporary and very misleading terminology. The section on “aquatic and terrestrial wildlife and special-status species” indicates that noise and activities during operations would temporarily deter big game from using available habitat during operation. The end of that timeframe is more than a generation away - Most current hunters, outdoor enthusiasts and existing big game animals/small game will not be around by the time this proposed project is decommissioned.

ES 6.11 Social and Economic Resources (including Environmental Justice), page ES-xi, and 3.12.5.3 Issue Statement #1, page 3-130. The Project could contribute to changes in residential property values for nearby homes; however, studies of the effects of wind facilities on residential property values have shown that residential property values could increase or decrease, are not statistically significantly related to the announcement or presence of wind facilities, and are influenced by multiple other factors...Based on the analysis of these issues, no significant adverse socioeconomic impacts are anticipated from the Project, including impacts to environmental justice populations.

0043-09

Comment/Question – This section is by far the weakest section in the draft EIS, with such a superficial evaluation that it appears biased. A general literature search, and one that does not appear to have even been critically evaluated, is not sufficient evidence to support the contention of no socio-economic impact. The narrative includes gross generalizations that cite studies completed almost a decade ago without any examination of the dissimilarities between this proposed project and those included in the

RESPONSE(S)

Western Area Power Administration

0043-07

WAPA’s role in the NEPA process is to consider the interconnection request by ConnectGen and to analyze and disclose the impacts of the proposed Project. WAPA has and will continue to consider if the Project meets county and State regulations, and WAPA does encourage developers to implement all reasonable and feasible EPMs. The specific numbers of sensitive viewers associated with each KOP were not evaluated and are variable based on time-of-year and seasonal uses. Sensitive viewer locations were determined and categorized based on viewer sensitivity type and where the largest number of viewers would be most likely to occur within the landscape based on primary travel routes, residential areas, and known recreation areas.

0043-08

While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation.

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued

0043-09,
continued

studies. Whether or not wind development will impact property values is likely closely tied to the size of the project and whether the project has significant impacts on aesthetics and visual resources compared to the characteristic landscape. Not every windfarm has such significant impacts and as such, it would not be appropriate to assume similar effects on property values as this proposed project, which does have a significant impact on aesthetics. If general studies are to be cited as part of the overall analysis, they should be accompanied by a thorough discussion of their potential applicability and consideration of the economic forces in play at the time and location of those studies. The current analysis in the draft EIS is so brief and without local information, that it appears dismissive.

0043-10

Rural residential areas in Wyoming are very different from typical rural residential areas in other states, all of which are more populous. People accept the inconvenience of sometimes difficult access to their rural residences because of the great value they put on being surrounded by the natural landscape rather than the built environment. Viewsheds are critically important here. We believe residences located in areas where the degree of visual change would be moderate to strong (76% of the KOPs for maximum turbine height or 54% of the KOPs for minimum turbine height) will be less attractive to prospective buyers and become significantly devalued. No attempt was made to investigate local Wyoming impacts where vistas are large and often not treed to provide any buffer. Additional more local analysis is warranted in order to more reliably assess the potential impacts on rural residences whose view shed will be impaired within 5 miles to 30 miles of this proposed project. For example, interviews or surveys of property owners and an analysis of associated property values affected by the Roundtop wind farm may provide some interesting results. Regardless of what tax assessments say, if the homes located in the midst of the Roundtop windfarm project are impossible to sell, that is a huge loss for those residents. If you've driven by the properties visible from I-80, it defies common sense to think that there is no impact on the value of those homes.

Additionally, Table 3.32 only shows the median value of owner-occupied housing which, as a single parameter, does not adequately characterize owner-occupied housing in the area –more robust information on number of dwellings, the mean and range should be provided. Also, information is only shown for census blocks within 5 miles of the planned facilities, although the draft EIS indicates moderate visual change (the landscape would appear substantially altered) to residents in the Buttes area at a 5.4 mile distance (KOP 2) – the census block including this area is noticeably absent from the owner-occupied housing summary but is folded into the statistics with the much larger Albany County, so any data from that area is not discernable. In short, the meager desk top analysis included in the draft EIS is insufficient to support the conclusions of no significant adverse socioeconomic impacts. Will WAPA, ConnectGen or the County guarantee that property values will not be negatively impacted, and if they are, either purchase affected properties at fair market prices (pre-wind development) or provide a relief fund to compensate impacted landowner(s) for their lost value?

0043-11

ES 6.9 Public Health and Safety, page ES-x.....no significant impacts would be anticipated related to public or worker health and safety.

ES 6.12 Transportation and Access, page ES-xii. Based on this analysis, no significant impacts to transportation and access are anticipated.

Comment/Question - Neither of these sections adequately address the safety issues associated with the increased volume and slower large-vehicle traffic on Hwy 287 that would result from this proposed project. There are several subdivisions that do not have left turn lanes at their entrances - if you've ever tried to make a left turn into the Buttes or the Harney Creek area, it can be a harrowing experience as you look in your rearview mirror worrying whether you're going to get rear-ended by a semi. It would

RESPONSE(S)

Western Area Power Administration

0043-09

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0043-10

A thorough literature search of applicable studies related to the effects of wind farms on residential property values was conducted to support the draft EIS. As noted in the draft EIS, studies have provided varied findings with regard to wind farm effects on property values. The most comprehensive, robust, peer-reviewed studies reviewed (and referenced in the draft EIS) provide the best basis for assessing project-related effects of a project such as the Rail Tie Wind Farm. Laposa and Muller (2010) provide an analysis of residential property impacts within the region where the Rail Tie Wind Farm is proposed and showed that the effect of an announcement of a proposed wind farm had insignificant and minimal impacts to surrounding home values.

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued	<p>0043-11, continued <i>certainly get worse if this project is developed. Hwy 287 has a reputation as a dangerous two-lane road – just today (5/14) I passed the scene of a fatal accident in a section of roadway that this project would impact, and there were no adverse weather conditions at the time. There is no discussion in the draft EIS of traffic accidents or fatality statistics on these roadways. The draft EIS indicates that no changes in the existing roadway infrastructure would be necessary, but this conclusion does not appear to be based on a thorough evaluation.</i></p>
0043-12	<p>3.2.4.1 Landscape Character and Scenic Quality, page 3-3. Based on the above information, approximately 294,613 acres (12 percent) of the analysis area is considered to have Class A or Distinctive scenic quality; approximately 1,035,260 acres (42.0 percent) has Class B or Typical scenic quality; 821,424 acres (33.5 percent) is characterized as Class C or Indistinctive; and the remaining 307,213 acres (12.5 percent) is characterized as not inventoried or other landownership.</p> <p><i>Comment/Question – The draft EIS indicates a number of KOPs will experience moderate to strong impacts. How many residents, tourists, travelers and outdoor users will this impact on a daily and annual basis? What impression will the changes in landscape character and scenic quality leave on these parties relative to the quality of life and living/working in Albany County? Additional analysis is needed to tie these impacts to the numbers of sensitive viewers.</i></p>
0043-13	<p>3.2.5 Effects on Night Skies- Wind Turbines, page 3-12. the Project would follow FAA Obstruction Marking and Lighting requirements as defined by Advisory Circular No 70/7460-1L, ConnectGen would coordinate with the FAA on the feasibility of implementing an Aircraft Detection Lighting System (ADLS) to reduce the potential effects of nighttime lighting (VIS-5). An ADLS (or a similar system) would remain off until activated by the detection of nearby aircraft and would then turn on/turn off again after the aircraft leaves the area. Implementation of an ADLS is dependent upon several factors, including flight paths, proximity of airports, commercial availability, technical feasibility, and agency review and approval.</p> <p><i>Comment/Question – What are the chances and when will it be known whether the FAA will approve use of an ADLS? Without this decision and ConnectGen’s commitment, the effects on night skies and visual impacts that will be experienced by residents, tourists and travelers cannot be thoroughly evaluated. A study of the impacts on residents in the vicinity of the Roundtop wind project should be done to provide Albany County residents with an idea of what to expect if ADLS is not approved.</i></p>
0043-14	<p>3.4.4.6 Species of Concern, page 3-34. Research on big and small game avoidance of wind turbines during operations is limited (Lovich and Ennen 2013; Smith et al. 2020). A recent study on pronghorn response to wind energy development found that during winters, pronghorns avoided operational wind turbines within their winter home ranges (Smith et al. 2020); however, this study concluded that additional, long-term studies are needed. A 2017 study (Sawyer et al. 2017) on mule deer demonstrated long-term avoidance of oil and gas infrastructure, which could have some applicability to other energy infrastructure, including WTGs. Conversely, observations and studies of big game at operating wind facilities have demonstrated that big game species do not necessarily abandon habitats within or adjacent to wind energy facilities (Tetra Tech 2020d; Walter et al. 2004).</p> <p><i>Comment/Question – The first sentences note, “Research on big and small game avoidance of wind turbines during operations is limited...long-term studies are needed.” The Project Area directly intersects at least one pronghorn migration route to winter range. Additionally, the Project Area and surrounding lands are known winter range (observed most winters along Hwy 287) and calving areas for elk.</i></p>

RESPONSE(S)

Western Area Power Administration	<p>0043-11 Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, “Proposed Action”). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment. Clarifications made to the transportation analysis area (section 3.13.3, “Analysis Areas”) and assumptions (section 3.13.5.2, “Methods of Analysis”) to describe the analysis of transportation resources within or near the Project Area.</p>
0043-12	<p>The specific numbers of sensitive viewers associated with each KOP were not evaluated and are variable based on time-of-year and seasonal uses. Sensitive viewer locations were determined and categorized based on viewer sensitivity type and where the largest number of viewers would be most likely to occur within the landscape based on primary travel routes, residential areas, and known recreation areas.</p>
0043-13	<p>ConnectGen will develop a Lighting Plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.</p>
0043-14	<p>See page C-112 for response.</p>

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued

0043-14,
continued

Additional roads and increased traffic during construction and operation are known to impact migration routes and uses by wildlife. Because data is limited and conflicting, as well as the fact that this proposed project will affect several HMUs/species and the hunters who have been using this area for years, the potential impacts on small and big game warrant additional analysis, including beyond the Project Area. Why was input from Wyoming Game and Fish not included? Why are the conclusions based on many general studies and include so little site-specific information? This section should provide a more in-depth analysis of a very important topic.

0043-15

3.4.6 Aquatic and Terrestrial Wildlife and Special-Status Species Conclusion, page 3-39. The Project would slightly decrease available habitat for big game species. Ground disturbance would temporarily remove vegetation used by big game as forage and the noise associated with construction activities would temporarily deter big game from using available habitat. Noise and activities associated with operations would also temporarily deter big game from using available habitat. Three HMUs completely overlap the Project Area, which amounts to approximately 2.4 percent of the total acreage of the three HMUs. Considering the percentage of impacts relative to available habitat, big game individuals would be impacted by Project construction and operation, but impacts would not be anticipated at the population or community levels. Impacts from noise and activities associated with construction and operations would cease when the activity was over, and impacts associated with ground disturbance would end when the disturbance was reclaimed as part of Project decommissioning. Habitat fragmentation would not be anticipated to affect wildlife communities or populations. Increased vehicle and equipment traffic on new and existing access roads would increase the risk of vehicle collisions. These impacts would be minimized through the establishment of a speed limit of 25 mph on access roads, and risk would be further reduced with the completion of construction activities, but would be remain, at a lower level, for the duration of Project O&M. Throughout the life of the Project, most wildlife would be able to effectively cross roads during times of inactivity; vehicle mortalities would not be anticipated to affect communities or populations of a species.

Comment/Question – What is the duration of “operations would also temporarily deter big game”? If it is the +/-30 year lifecycle of this proposed project, than that is more than temporary and very misleading. This proposed project will affect big and small game well beyond the Project Area. As mentioned above, research is limited and conflicting; however, these conclusions appear to be based on information or speculation that supports the most favorable outcomes. Some analysis from independent experts (e.g. WYGF) would provide more credibility to the conclusions regarding potential impacts relative to populations, avoidance, communities, etc..

0043-16

3.8.4.2 Local Land Use, page 3-84. The analysis area includes both State and private lands zoned as exempt and agricultural, respectively, within unincorporated Albany County. Land use in the analysis area consists primarily of rangeland with scattered residences and residential structures throughout the analysis area that are generally associated with ranching activities.

Comment/Question – The analysis area for this assessment was limited to the Project Area. This proposed wind project would affect land use well beyond the Project Area. A couple examples:

- *There are State lands both within and near the Project area that are frequented by hikers, hunters, fisherman and wildlife viewers, including us. This proposed wind project would most certainly detract these users from the Project Area and surrounding areas. Who would want to engage in outdoor activities in the middle of or in proximity to this wind project?*

RESPONSE(S)

Western Area Power Administration

0043-14

The WYGF was among the state agencies WAPA contacted to initiate coordination (see table 5-1; see section 1.4, “Cooperating Agencies”), and WYGF spatial data informed the analysis of impacts to big game species in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.” WAPA also relied on best available peer-reviewed science. Research made available since the publication of the draft EIS has been incorporated where appropriate.

0043-15

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. As noted in the draft EIS, section 3.4.5.3, “Proposed Action,” research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, “Cooperating Agencies,” for a complete discussion of cooperating agencies.

COMMENT(S)

0043: Jack and Marjorie Bedessem, continued

0043-16,
continued

- *There are several rural residential subdivisions and others under consideration within the view shed of this proposed wind project. Will new rural subdivisions be developed? Will the current rural subdivisions be able to sell their available lots and realize a return on their investment in infrastructure?*

Therefore, this analysis area should extend well beyond the Project Area (e.g. 30 miles) to understand the true and full scope of the potential impacts to Local Land Use.

3.8.5 Impacts to Resource, page 3-88. As described above, the Project would not conform with Albany County Comprehensive Plan land use objective LU 2 because it would not avoid ground disturbance in open spaces or agricultural lands. The Albany County Comprehensive Plan was developed to be used as a guide for other actions and regulations (Albany County 2008). Since the adoption of the Albany County Comprehensive Plan, other regulations, including the Albany County Zoning Resolution, which under Section 12 includes regulations specific to wind energy siting in Albany County (Albany County 2015), supersedes the Albany County Comprehensive Plan, and the Project has been designed to be consistent with the Albany County Zoning Resolution. Therefore, the Project's nonconformance with the Albany County Comprehensive Plan would not represent a conflict. As a result, the Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans.

0043-17

Comment/Question – The above paragraph has conflicting and inaccurate statements. For example, “the Project would not conflict with existing, applicable zoning designations, land use plans...” conflicts with the first sentence and is inaccurate because the Albany County Comprehensive Plan is considered a land use plan.

3.8.6 Land Use Conclusion, page 3-90. The Project would not conflict with existing, applicable zoning designations, land use plans, regulations, or conservation plans. Existing land uses would be preserved to the extent possible. Land uses would be reestablished during decommissioning of the Project.

Comment/Question – See above comment. Do the Preparer and/or Reviewer of this draft EIS have delegated authority and expertise to make the determination of conformance/non-conformance with land use plans? The Albany County Comprehensive Plan (ACCP) was prepared with tax-payer dollars and with significant public involvement. Thus, this determination should be left to the parties responsible for development and implementation of the ACCP, rather than stated as such to potentially influence readers and users of this draft EIS.

RESPONSE(S)

Western Area Power Administration

0043-16

The land use analysis in the EIS is focused on existing land uses and the potential for permitted uses. Use of land for activities such as hiking, hunting, fishing, and wildlife viewing outside the Project Area are not precluded by the Project. Other aspects of these activities may be affected, and are noted in the relevant sections (i.e., section 3.11, “Recreation Resources,” section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species”). Rural residential subdivisions will be precluded within the Project Area due to county zoning setbacks. Concerns of visibility were addressed in section 3.2, “Aesthetics and Visual Resources,” including a viewshed analysis conducted out to a 30-mile buffer around the Project. The majority of the Project is being proposed on private rangeland with a smaller portion being proposed on State Trust Lands.

0043-17

State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, “Cooperating Agencies,” for a complete discussion of cooperating agencies. As stated in EIS section 3.8.5.3, “Proposed Action,” the Albany County Zoning Resolution supersedes the Albany County Comprehensive Plan. The Albany County Comprehensive Plan is advisory rather than regulatory, unlike the Albany County Zoning Resolution, which is regulatory. As such, the Albany County Comprehensive Plan serves only as a guide. Additional clarifications have been made to the EIS. While the Project may not conform to LU 2 under the Albany County Comprehensive Plan, it would not represent a conflict per the county’s zoning resolution, because commercial wind energy projects are considered a permitted use within the agricultural zone. The roles and authorities of WAPA and cooperating agencies in the preparation of the EIS are described in chapter 1, which was prepared pursuant to the regulations described in section 1.3, “Regulatory Framework.”

COMMENT(S)

0045: Susan Davis*

From: Susie Davis <susdavis97@aol.com>
Sent: Sunday, May 16, 2021 4:24 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] EIS Draft comments on Rail Tie Wind

May 16, 2021

Mr. Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
Post Office Box 281213
Lakewood, Colorado 80228-8213

Mr. Wieringa:

I find the Draft Environmental Impact Statement (EIS) for the proposed Rail Tie Project in southern Albany County, Wyoming submitted to you deficient, incomplete, and incorrect in numerous areas. The most egregious from my perspective is the blatant disregard of safety for those who live within a five mile radius of this project. The lack of fire prevention and methods to fight such fire are absent from ConnectGen's proposal. See 3.2.4 Fire and Emergency Response Plan Appendix E in the submitted draft EIS.

0045-01

At least 187 homes are situated within a 5 mile radius of the proposed wind industrial site. Some, located on the west side of highway 287, have only one route to access the highway. In the event of a fire, if this one road is blocked because of required roadwork or heavy machinery, those seeking safety in an emergency would perish.

This scenario is not only true of fires, but also access by emergency medical transport in the area.

RESPONSE(S)

Western Area Power Administration

0045-01

As described in section 3.16.4, "Baseline Description," WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. ConnectGen has prepared an Emergency Response Plan and a draft Transportation and Traffic Management Plan (to be completed once final haul routes are determined) as part of their application to the Wyoming Industrial Siting Council and in coordination with the appropriate State of Wyoming and Albany County agencies, including emergency services.

COMMENT(S)

0045: Susan Davis, continued

0045-02 Surely you understand this area is compromised by long standing drought, exacerbated by climate change. To the west and south of the proposed wind industrial site is a huge combustible forest, filled with dead, beetle kill trees, annually challenged by pervasive drought conditions.

0045-02 Turbines proposed for this project will reach 595 ft. in the air, much taller than almost all land based turbines. ConnectGen has chosen not to include fire suppression equipment in the turbine nacelles. Wind turbine nacelles catch on fire. Wind turbines do not only attract lightning, they also create and divert lightning to the ground.

0045-03 Disturbed prairie, caused by the turbines being delivered, built, and maintained, will not regenerate native fire-resistant perennial ground cover. Instead, the very flammable, invasive, annual cheat grass will take over the area. Note also that cheat grass is not an edible food source for the varied and large number of small and large native animal species that make this area their home or migration route.

0045-03 A fire in this area would be most likely unstoppable.

0045-04 One very small, seasonally staffed, volunteer fire department, the Tie Siding Volunteer Fire Dept. (TSVFD), is not capable, or even allowed, to fight structure fires. This fire department depends on the one access road, Boulder Ridge, leading into Cherokee Park Rd., to access highway 287. What happens when the volunteers are blocked by fire or equipment on the road?

0045-05 I urge you to take **NO ACTION** on this proposal. With more wind industrial sites being built all over southern Wyoming, and others no longer operational but on already environmentally compromising areas that could be recovered for use, these 26,000 acres are not the right place for wind industrialization.

Susan Davis
 Fish Creek Ranch Preserve
 244 Elk Crossing Rd.
 Tie Siding WY 82084

RESPONSE(S)

Western Area Power Administration

0045-02 As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project’s Emergency Response Plan (PHS-14).

0045-03 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include information on cheatgrass and fire regime. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and is available in the Project administrative record.

0045-04 See response to comment 0045-01.

0045-05 Comment and preference noted.

COMMENT(S)

0046: Bonnie Bath

From: Bonnie Bath <bkbath50@hotmail.com>
Sent: Sunday, May 16, 2021 9:56 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Fire

Sent from [Mail](#) for Windows 10

Hello and thank you for taking comments

0046-01 I wish to comment on fire suppression according to 4.1. Hopefully there would be no fire associated within the proposed project. This particular area has had fires associated with the Union Pacific railroad and fires which have extended from hiway 287 from vehicles. The county of Albany would receive financial assistance and resources to help mitigate any expense to Albany County. It is unclear about the use of narcelle fire suppression units.

0046-02 The Rawlins Interagency Dispatch Center, a division of the Bureau of Land Management's (BLM's) High Desert District, dispatches wildfire services to six counties in southern Wyoming (including Albany County) on behalf of the counties, four BLM Field Offices, the State of Wyoming, Wyoming State Forestry, the National Park Service, and the U.S. Fish and Wildlife Service (Rawlins Interagency Dispatch Center 2018). **The Wyoming State Forestry Division is responsible for fire suppression on Wyoming state land. Local fire districts and departments provide fire prevention and suppression activities on private lands and may assist with fires on federal or state lands as requested by the applicable land management agency. County-level fire districts have mutual aid agreements in place with one another as well as with local fire departments. These mutual aid agreements allow for the sharing of personnel, equipment, and resources, as needed**

With the above resources, it appears that there are many resources to handle a potential fire.

Thank you Bonnie Bath

RESPONSE(S)

Western Area Power Administration

0046-01 ConnectGen would use nacelle fire suppression units. Please see section 2.2.6, "Environmental Protection Measures," for information on this and other environmental protection measures for the Project.

0046-02 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA2021) has been updated to include a description of fire response resources and mutual aid agreements. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record.

COMMENT(S)

0047: Crystal Vogel

From: Crystal Vogel <boardwalk1951@aol.com>
Sent: Sunday, May 16, 2021 2:59 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Glaring Inaccuracies

It has come to my attention that your report on the Rail Tie project in Albany Co WY does not accurately reflect current research on how wind turbines affect wildlife. We all make mistakes sometimes. Therefore, I am providing with the information so that you can correct your report.

0047-01

Wind turbines are known to hit many birds, in particular raptors. They are birds of prey and are more interested in watching their prey than looking out for the blades of a turbine. Therefore the government actually gives the company a quota of acceptable deaths of bald eagles and other birds of prey. I don't see where that is in your report, but you have my email in the event I wasn't looking in the right place.

0047-02

Next, where is the research of bat deaths. Bats, for as little as they are can eat up to 100 mosquitos every 5 minutes. That's six to eight thousand every night. They take care of bugs that eat crops. Unfortunately turbines create pressure changes their little blood vessels burst. They literally drowned in their own blood and bodily fluids. Of course bats have a bad rep, but no one really thinks they are Dracula's buddies. They are a nocturnal mammal capable of flight.

0047-03

Given that Lyme disease is a devastating. Getting rid of mosquitos is a big deal. Yes, we can spray for them, but that just gets into our food and water supply sooner or later. Crops are more likely to be bug riddled. Crop failures are devastating not just for a single farmer, but for society as a whole. I think you

0047-04

can see the links that were never addressed in your report. I will cut and paste the Scientific American report for you. There are tons of research on antelope. Just see https://bioone.org/search?author=Peter_D._Vickery as well as many other animals and some research on people. If you need help finding these things just reach out.

Once again, we've all made mistakes. This is your opportunity to correct some of the errors of omission in your report.

Respectfully,
 Crystal Vogel

RESPONSE(S)

Western Area Power Administration

0047-01

Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.

0047-02

Comment noted. Please see section 3.5.5.3, "Proposed Action," for a discussion on impacts to bats from turbine collision and barotrauma, including a discussion on the impacts relative to turbine height.

0047-03

Comment noted.

0047-04

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. SWCA was unable to locate the literature referenced in the comment. SWCA reached out to the commenter but did not receive a response by the time of publication.

COMMENT(S)

0048: Crystal Vogel, continued

Scientific American

<https://www.scientificamerican.com/article/wind-turbines-kill-bats/>

[Sustainability](#)

On a Wing and Low Air: The Surprising Way Wind Turbines Kill Bats

It is the pressure change—not the blades—that wipe out thousands of bats annually at wind farms

- By [David Biello](#) on August 26, 2008

Scientists have known since 2004 that [wind farms kill bats](#), just as they kill birds, even though the flying mammals should be able to avoid them. Many biologists thought that the bats, like their avian counterparts, might be falling victim to the fast-spinning turbine blades. But an examination of 188 hoary and silver-haired bats killed at a wind farm in southwestern Alberta in Canada between July and September in 2007 showed that nearly half showed no external injuries—as would be expected if the giant blades had smashed the flying mammals to the ground.

Instead, 90 percent of the 75 bats the researchers ultimately dissected had been killed by burst blood vessels in their lungs, according to results presented in *Current Biology*—suggesting that the [air pressure](#) difference created by the spinning windmills had terminated them, not contact with the blades.

"As turbine height increases, bat deaths increase exponentially," says ecologist Erin Baerwald of the University of Calgary in Alberta, who led research into the deaths as part of her master's project. "What we found is a lot of internal hemorrhaging."

As the wind moves through a [wind turbine's blades](#), pressure drops behind them by five to 10 kilopascals (a pascal is a unit of pressure), and any bat unlucky enough to blunder into such an undetectable low pressure zone would find its lungs and blood vessels rapidly expanding and, quickly, bursting under the new conditions.

The Summerview wind farm, which Baerwald studied, kills hundreds of bats every year, particularly during the fall migration period that has just begun. But bats that find their way via [sonar](#) should have no trouble detecting fast-moving objects like the 200-foot- (60-meter-) long blades on the 300-foot- (90-meter-) tall turbines that spin as quickly as 160 miles (255 kilometers) per hour. And before the installation of these new, taller turbines bat kills had been practically nonexistent.

0047-05

RESPONSE(S)

Western Area Power Administration

0047-05

See page C-119 for response.

COMMENT(S)

0048: Crystal Vogel, continued

Pressure drops of as low as 4.4 kilopascals kill common lab rats and all the bats autopsied showed internal damage and bleeding consistent with this type of death, known as barotrauma. "If bats have a lungful of air as they fly through the air-pressure change, there's nowhere for the air to go," Baerwald explains. "The small blood vessels around the lungs burst and fill the lungs with fluid and blood."

This may also explain why, although some birds are killed by wind farms, the majority of casualties are bats. Birds' lungs are much more rigid and their capillaries are stronger, making them capable of withstanding extreme pressure changes, according to Baerwald. Those birds that are killed typically show damage from being struck by the actual turbine blade. "This offers an explanation of why bats, once they come across these turbines, are so likely to end up dead," says research biologist Paul Cryan of the U.S. Geological Survey, who has studied the issue but was not involved in this study. But "we don't have a satisfying explanation for why we're seeing such large numbers of bats. It seems they're being attracted to turbines."

[Wind farm](#) owners are well aware of the problem—and the potential hit to their environmental credibility. The corporation that owns Summerview, TransAlta Wind, along with ENMAX, Suncor Energy, Alberta Wind Energy and even Shell Canada teamed with Austin, Tex.-based Bat Conservation International to fund this study led by Baerwald. (TransAlta did not return calls for comment.)

It is unclear what measures, if any, can be taken to eliminate this pressure problem other than stopping turbines from spinning during times of lighter winds at night when bats tend to be most active. Of course, that would also curtail their electricity production: An experiment in August 2007 that stopped 19 of Summerview's turbines when winds fell below 18 feet (5.5 meters) per second cost TransAlta at least \$50,000 in lost electricity production.

In the future, bat conservationists suggest, wind farms should be built away from known bat [migration](#) flight paths. The problem is: bat migrations are poorly understood at best. "We don't even know if they use migratory routes," Baerwald says, though she plans to begin looking for them in September.

"We don't have a clear idea of what a bad site for wind turbines is in terms of bat fatalities," Cryan adds. "We're not to the point yet where we can suggest solutions."

The full impact of these bat-killing pressure zones extends far beyond the wind farm, however. Such migrating bats travel from Canada as far as Mexico, eating thousands of insects en route, including [crop pests](#) such as moths and beetles. "They are one of the only things that fly around at night and eat bugs," Baerwald notes. "Bats killed in Canada could have a detrimental impact in America or Mexico. It's not local. It's an ecosystem-wide issue."

[Rights & Permissions](#)

0047-05,
continued

RESPONSE(S)

Western Area Power Administration

0047-05

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Please see section 3.5.5.3, "Proposed Action," for a discussion on impacts to bats from turbine collision and barotrauma, including a discussion on the impacts relative to turbine height.

COMMENT(S)

0048: Crystal Vogel, continued

ABOUT THE AUTHOR(S)

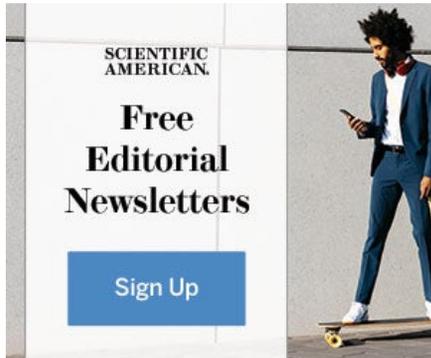


David Biello is a contributing editor at *Scientific American*.

[Follow David Biello on Twitter](#)

Recent Articles by David Biello

- [China's Xi Outshines Trump as the World's Future Energy Leader](#)
- [Cleaning the Air with Plastic \[Excerpt\]](#)
- [Fact or Fiction?: Premium Gasoline Delivers Premium Benefits to Your Car](#)



RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0048: Michael C. Tincher

From: Mike Tincher <mike@rmrp.org>
Sent: Monday, May 17, 2021 1:48 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Injured Raptor Protocol for Rail Tie Wind Area

Hello,

0048-01 I attended the scoping meeting in Laramie, WY in January of 2020. I have reviewed the EIS for the project in regards to raptors and feel the efforts to assess the area as a migratory corridor for raptors is insufficient and incomplete. I believe the use of this area by raptors is far greater than what is being reported. It is of high probability that injured raptors will be found in the project area and regardless of whether their injuries are programmatic or not, they will need to be rescued.

0048-02 What protocols are being enacted for the reporting and timely rescue of injured raptors in the project area? What discussions have been had with Wyoming Game and Fish in Laramie for this process? There is also the issue of raptor nests within the project area. While most raptors will avoid the construction, species such as American Kestrels, Great Horned owls and Common Barn owls have been known to use man made structures and idle equipment for nest sites.

0048-03 The Rail Tie Wind project is located within the service area of the Rocky Mountain Raptor Program in Fort Collins, CO. Traditionally, the rescue of injured raptors found in that area of Wyoming is the responsibility of Wyoming Game and Fish. These raptors are then assessed for transport. Due to regulatory requirements, these raptors are then transported to a local veterinarian for a health inspection for a required entry permit for Colorado. Once that is secured, transport to Fort Collins is arranged. The process of communication, rescue and transport should be in place prior to construction.

The Rocky Mountain Raptor Program is not only available to rehabilitate injured raptors from the project area, but is available as a resource to consult about raptor issues for project managers, environmental officers and vendors involved in the various phases of this project. Please feel free to reach out to us if you require/desire further input in regards to this issue or have any general questions about our program.

Sincerely,

RESPONSE(S)

Western Area Power Administration

0048-01 The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS's *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds.

0048-02 ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures.

0048-03 Comment noted.

COMMENT(S)

0048: Michael C. Tincher, continued

Michael

--

Michael C Tincher
Rehabilitation Coordinator
Rocky Mountain Raptor Program
2519 S. Shields St. #1K-115
Fort Collins, CO 80526
Office 970-454-7756
Emergency On Call 970-222-0322

"It is not the critic who counts: not the man who points out how the strong man stumbles or where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood, who strives valiantly, who errs and comes up short again and again, because there is no effort without error or shortcoming, but who knows the great enthusiasms, the great devotions, who spends himself for a worthy cause; who, at the best, knows, in the end, the triumph of high achievement, and who, at the worst, if he fails, at least he fails while daring greatly, so that his place shall never be with those cold and timid souls who knew neither victory nor defeat." Teddy Roosevelt.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0049: John Davis

From: John Davis <johndavis7993@aol.com>
Sent: Sunday, May 16, 2021 11:41 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Oppose RailTie

0049-01

Mark Wieringa & others: my wife and I own a house at 244 Elk Crossing Rd in Tie Siding, WY. It is one of the closest properties to the proposed RailTie windfarm, which in large part probably explains why it dropped in value by \$157k last year, per the Albany County Assessors office.

0049-03

We bought and built on our property, part of Fish Creek Ranch Preserve in 2005. It is a platted subdivision with Covenants and Restrictions, that gave us some comfort that the surrounding area would be similarly developed. We particularly selected our Lot (#6) because it views to the East, and the Ames Monument is what our telescope is trained on. We are fans of Wyoming History, and relished that the former Cherokee Trail, Overland Stage Trail, and Lincoln Highway Route are within our viewscape. These historic remnants will be obliterated by the proposed RailTie Wind Project. Thus, we oppose the project and our standing is not only in behalf of these historic features in our viewscape, but also the fact that we are \$157k poorer than we were a year ago.

0049-02

We ask that WAPA take no action on ConnectGen's application, and preserve the unique historical features of impacted area. Thank you,

John Davis

RESPONSE(S)

Western Area Power Administration

0049-01

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0049-03

Comment and preference noted.

0049-02

Comment and preference noted.

COMMENT(S)

0050: Jim Verley

From: Jim Verley (jimverley@msn.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Friday, May 14, 2021 4:00 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

Wyoming can no longer rely on extraction for income and what better way to move into a sustainable future than renewable resources.

0050-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

0050-02

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural

0050-03

subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be

0050-04

built.

Sincerely,

Jim Verley
4418 Navajo Drive
Laramie, WY 82072
jimverley@msn.com
(307) 760-7667

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0050-01

Comment and preference noted.

0050-02

Comment noted.

0050-03

Comment noted.

0050-04

Comment and preference noted.

COMMENT(S)

0051: Terry J. Cammon

From: TJ Cammon <tjcammon@gmail.com>
Sent: Monday, May 17, 2021 7:58 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Terry Cammon <tjcammon@gmail.com>; Catherine Cammon <catherine.cammon@gmail.com>; Amanda MacDonald <amacdonald@connectgenllc.com>
Subject: [EXTERNAL] Public comments in favor of Rail Tie Wind project

We, Catherine and Terry Cammon, own property within the project area, and signed a 35 year lease with ConnectGen in 2020, after much consideration and discussion.

Pro Reasons:

- 1) Climate change; we can't ignore the human element anymore.
- 2) A reliable, renewable, non toxic, non emission emitting energy generator.
- 3) Constant, and I mean constant wind. Predominantly from the Northwest, and if ever still, shifting to the SE. The wind resource is real!
- 4) Few demands on local resources, including water, roads, and physical disruptions.
- 5) Much needed economic revenues to Albany County, Wyoming, and the US: taxes and direct revenues.
- 6) Lower housing density for the existing area. I much prefer seeing wind towers in " my yard" and on the horizon, than 35 acre ranchettes, which in little time become suburbs.
- 7) Our four children believe wind power is important to their futures and their children.
- 8) I recently read that President Biden was concerned that the USA is now dead last in infrastructure development. You have an opportunity to show something can be done; we shall see.

CONS:

- 1) The views, including ours will change. The "nimby" opposition simply don't want any changes to their views. I have never owned a home where the view did not change.
- 2) I cannot honestly believe the opposition's many, many reasons for denying this project; including but not limited to wildlife degradation, light pollution, ice shards, noise, light flickering, aviation safety, sex lives ad nauseam.

0051-02

In conclusion, this project approval is for the benefit of many. If denied, the viewshed of a few is more important. Ridiculous, but true.

Respectfully submitted,

Terry J Cammon
52 Williams Reservoir Rd
Buford, WY

Sent from my i phone

TJ Cammon

RESPONSE(S)

Western Area Power Administration

0051-02

Comment and preference noted.

COMMENT(S)

0052: Mary F. Moore

From: Muffy Moore <muffymoore68@gmail.com>
Sent: Monday, May 17, 2021 3:33 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Comment

May 16, 2021

Mr. Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
Post Office Box 281213
Lakewood, Colorado 80228-8213

Dear Mr. Wieringa:

I am submitting the following comments and observations of WAPA's Draft Environmental Impact Statement (EIS) for the proposed Rail Tie Project in southern Albany County, Wyoming:

My comments focus on the Land Use section, chapter 3, starting on page 3-81.

The Draft Environmental Impact Statement 9section 3.8.5) 1 describes an Impact to Land Use as "Conflict of the Project with applicable existing local land use plans, ordinances, zoning resolutions, comprehensive plans, regulations, or policies. "

There are many conflicts.

The land in the project area is designated Priority Growth Area (PGA) 3 and PGA 4 in the Albany County Comprehensive Plan. "Conservation and protection of agricultural operations, wildlife habitat, and sensitive lands is a high priority in PGA 4. Low density residential uses are encouraged." (3.5.4)

PGA 4 is addressed in the EIS by 4 land use objectives:

1). The Project Proponent would plan, coordinate, and conduct each Project stage in a manner that is efficient and protects the quality of the environment. As a result, the Project would conform to this land use objective.

How the quality of the environment is to be protected is not explained.

2). The objective of "preserving open spaces, agricultural lands, and environmentally

RESPONSE(S)

Western Area Power Administration

0052-02

COMMENT(S)

0052: Mary F. Moore, continued

sensitive areas. “
Even ConnectGen admits they cannot meet this objective. (3-88)

3) The objective of “fulfilling housing and employment opportunities for current and future residents.”

Connectgen oddly asserts that they meet the housing objective because their intent is not to fulfill housing demands. However they would supply construction jobs and add to the already critically short supply of housing in Laramie.

4) The objective of providing recreational opportunities.

ConnectGen says they meet this objective by

- “Limiting ground disturbance to accommodate the Project would reduce the need for restrictions or closures to recreation areas, to the extent practicable, and there would be no permanent restrictions to or closures of recreation areas that would affect recreational opportunities.”

Which actually says, they will not provide recreational opportunities and do not meet this objective.

The EIS then states, correctly, that The Albany County Comprehensive Plan was developed to be used as a guide for other actions and regulations which were to be enacted to carry out its goals. It then makes the extraordinary statement that because regulations were duly passed, the Comprehensive Plan has been “superseded” and the project’s nonconformance with it is not a conflict.

The Comprehensive Plan is the foundation for land management documents such as zoning and subdivision regulations as well as all other decisions made by the County. Land use decisions made by the county are to follow the Comprehensive Plan, as is stated in several places of Section 5 of the zoning regulations. A Wind Energy Conversion System Use Permit is required under the Albany County Wind Energy Siting Regulations.

This permit requires applicants to certify that the Project would comply with all applicable State and county zoning and land use regulations, including land use plans. (EIS 3-82)

The EIS land use section completely ignores Priority Growth Area 3 – “Areas of the county that have existing development but are outside the Laramie UGA and water districts have been identified as relatively growth efficient places to direct future development. In general, PGA 3 areas are contiguous to existing development nodes, at least within a half-mile of existing development in areas more characteristically rural, or on the outskirts of the urban areas of the county.”

Tie Siding is in the center of the Rail Tie project. The area around Tie Siding is Priority Growth Area 3 and indeed has been growing rapidly. Hundreds of people have homes and businesses in that area, which was “identified by public input as areas appropriate for additional development”, (Comprehensive Plan “3.5.3) These people trusted county planning. It is safe to say that most would not have located there if the area had been designated for industrial wind turbines. The impact on their lives and livelihood will be devastating. Future residential growth will cease.

The significant costs inflicted on our residents, our communities, and our natural resources by this project would far outweigh the benefits to be gained. Among the goals of any comprehensive plan or zoning regulations is separation of incompatible uses and to thus avoid these costs. Surrounding a PGA3 area with industrial wind turbines violates the letter and the spirit of our regulations and planning.

0052-02,
continued

0052-03

0052-01

RESPONSE(S)

Western Area Power Administration

0052-02

Comment noted. WAPA’s NEPA process and EIS preparation is a separate process from the Albany County permitting process. WAPA has and will continue to consider if the Project meets county and state regulations. The conditions of county and state permits are listed in section 2.2.6, “Environmental Protection Measures.”

0052-03

WAPA’s NEPA process and EIS preparation is a separate process from the Albany County permitting process. As stated in section 3.8.4.5, “Agricultural Resources,” the town of Tie Siding, immediately north of the analysis area, is designated as an existing PGA 3; however, Tie Siding is outside the proposed Project Area limits. The area around Tie Siding, including the analysis area, is primarily composed of lands designated as agricultural under the Albany County Zoning Resolution, which classifies wind energy projects as a permitted use.

0052-01

Comment and preference noted.

COMMENT(S)

0052: Mary F. Moore, continued

The Rail Tie Project does not meet the requirements and goals of the Comprehensive Plan.

0052-04

1). It is in a Priority Growth Area, identified as an appropriate place for future residential development to occur.

2). As noted in the impact statement, the Project would not conform with Albany County Comprehensive Plan land use objective LU 2 because it would not avoid ground disturbance in open spaces or agricultural lands.

0052-09

3) The Comprehensive Plan stresses a priority of preserving wildlife habitat. The Rail Tie project will be built in an important wildlife migration corridor. Studies, including some not yet completed, show wildlife moving away from turbines.

4) The Comprehensive Plan names the importance of night skies. Wind turbines will destroy Laramie's night sky and perhaps affect the university's observatory. No ADLS lighting has been required in this project.

0052-08

5) The Comprehensive Plan names the importance of scenic vistas, view sheds, and attractive highway corridors. The Rail Tie project will destroy the scenic 287 entrance to Laramie. From the EIS Summary of Impacts table, this 26,000-acre project will drastically affect the viewshed of 354,850 acres (554 square miles) surrounding it, "...reducing the overall scenic quality for the entire area." The introduction of wind turbines and associated infrastructure would result in significant impact as compared to the characteristic landscape. It would appear substantially to severely altered, as project components would demand attention, will not be overlooked, and will be the dominant feature in the landscape.

0052-07

6) The Comprehensive Plan is designed to protect the quality of life and the health, safety and welfare of county residents. The Rail Tie project does nothing to protect residents living near the project from ice throw, flicker, blasting, and especially from increased fire danger.

0052-06

7) The Comprehensive Plan places a value on historical sites. The Rail Tie project places turbines all around the Ames Monument, Albany County's only National Historic Landmark, which has been called one of the finest in the country. Professor Ethan Carr writes, the monument's impact endures and "much of that effect is due to its remarkable setting in the high treeless plains, in a regional landscape that has altered little over millennia." The impact of the Rail Tie project on the Ames Monument cannot be mitigated.

0052-05

8) The Comprehensive Plan and other Albany County planning documents emphasize the importance of proper siting for industrial wind and states that places appropriate for such projects be identified. This has never been done, as is clear from this application to build in such a wholly inappropriate site.

I urge you to adopt the No Action Alternative.

Sincerely,

Mary F. Moore
91 Bobcat Ridge Road
Tie Siding, WY 82009

RESPONSE(S)

Western Area Power Administration

0052-04

See response to comment 0052-02.

0052-09

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federal or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0052-08

Comment noted.

0052-07

See response to comment 0052-02. ConnectGen has committed to the Albany County Commissioners' permit conditions and other safety measures, which are described in section 2.2.6, "Environmental Protection Measures."

0052-06

See page C-129 for response.

0052-05

See response to comment 0052-02.

COMMENT(S)

0052: Mary F. Moore, continued

RESPONSE(S)

Western Area Power Administration

0052-06

Mitigation of impacts that could occur from the Project to the Ames Monument NHL has not yet taken place. Mitigation would be addressed in a PA, as described in the EIS (see section 3.6.5.3, “Proposed Action,” and Appendix B, “Programmatic Agreement”). As stated in the EIS (see section 3.6.5.2, “Methods of Analysis”), the PA would also address special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing the monument’s exceptional value in commemorating or illustrating the history of the United States. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project Description (see chapter 2, “Proposed Federal Action and Alternatives, and ConnectGen’s Project,” and Appendix A, “Project Description”). Avoidance of impacts through the design and micro-siting of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed with consulting parties and pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA as impact offset, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources (although offset) could be permanent and long term. Impacts from blade movement or rotation and the vertical elements of turbines are further addressed in section 3.5.2.3, “Proposed Action.”

COMMENT(S)

0053: Alan B. Minier

From: Alan Minier <alanminier8@gmail.com>
Sent: Monday, May 17, 2021 11:07 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind DEIS comments

Dear WAPA,

My comments on the Rail Tie Wind Project fall into three main groups: fire and lightning, the depth of bedrock and its implications, and enforcement of EPMs. By way of background, my spouse and I own a second home in the forested area lying to the southwest of the Project, and have used Cherokee Park, Pumpkin Vine, and Hermosa Roads for more than twenty years.

I. Fire and lightning

I agree with the DEIS on a number of key points regarding fire safety. For example, I generally agree that:

Fires in wind turbines are most often caused by lightning strike, electrical malfunction, mechanical malfunction, or issues with maintenance. Once the fire is detected, intervention is limited because almost all turbine fires occur in the nacelles and are too high for firefighting action (Hertenberger et al. 2009); firefighters often focus on limiting fire spread by removing fuels adjacent to the turbine.

(DEIS, p. 245 of 357; Application, p. 41 of 1370) I also agree that an affected turbine will shut itself off. (Id.)

I also agree that rapid containment of a ground fire is important because ground fire in the Project Area will be characterized by high rates of spread. (DEIS, p. 245 of 357)

However, ground fire is not my only concern. The DEIS should pay more attention to the fact that the Project may increase lightning strikes outside the Project footprint. I can personally attest that the forest lying to the southwest of the Project has been heavily affected by pine beetle kill, and that the country is generally too rugged to clear the deadfall, which is abundant. Similar conditions persist into the much larger forest lying in Colorado, south of the Project.

0053-01

RESPONSE(S)

Western Area Power Administration

0053-01

A section on fuel model types as well as fire history in the broader area was added to the *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021). The memorandum also includes a discussion of timber fires being large and often fueled by beetle kill, but that the Project Area itself is dominated by finer grass and shrub fuels which exhibit more moderate fire behavior. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and IS available in the Project administrative record.

COMMENT(S)

0053: Alan B. Minier, continued

0053-02

The pertinent scientific literature identifies lightning strikes on wind turbines as the most common ignition source. “Offshore turbines operating in more challenging weather conditions, *multi-megawatt onshore turbines with heights exceeding 100 [meters], and turbines located at high altitudes*, all face a high risk of lightning strike which could result in fire ignition. Overview of Problems and Solutions in Fire Protection Engineering of Wind Turbines, Uadiale et al, Fire Safety Science – Proceedings of the Eleventh International Symposium (2014), p. 993.

“The majority of turbine fires are started by a lightning strike, brought about by their exposed and often high-altitude location and the height of the structure. . . .” “Turbine Fire Protection”, Starr, (2010) Wind Systems online magazine.

Note the emphasis on turbine height and the altitude of a project location. My cited authorities disagree with the notion that lightning strikes, and related fires, may be dismissed as rare occurrences. In December in Laramie County, a turbine was struck by lightning and burned. The Project will introduce a significant change to how the area attracts lightning, because the proposed turbines will soar above the nearby ridgelines.

One authority observes, “Wind turbines are lightning magnets – and strikes on these tall, spinning structures can cause significant damage. Blades explode; generators and control system electronics fry. . . [W]ind turbines are getting so tall that they frequently generate ‘up lightning.’ This type originates from the turbine’s own electric field and leaps from the tip of the blade to meet a downward bolt.” “Lightning Strikes Are a Big Problem for Wind Turbines,” Smith, Scientific American (December 1,2016).

There is some indication that the dynamic between tall turbines and lightning may have the effect of spreading lightning over an area 12 to 15 miles beyond the boundary of a wind farm. The authors of a leading paper observed “an uncommon upward/downward flash [of lightning] triggered by a wind turbine. In that flash, a negative upward leader was initiated from a wind turbine without preceding lightning activity. The flash produced a negative cloud-to-ground stroke several kilometers from the initiation point.” This strike was *20 to 25 kilometers away*, “The relevance of which is the production of extra lightning strikes within a few tens of kilometers around tall objects, *which without their presence may not have occurred.*” “Lightning discharges produced by wind turbines”, Montoya et al, (2013), Journal of Geophysical Research Atmospheres; see “Lightning bolts love wind turbines a little too much,” Johnson, arstechnica (2014)

Moreover, “research suggests that lightning is an increasingly common cause of large blazes, and that climate change may cause an increase in lightning strikes over the continental United States in coming decades.” *In the West, Lightning Grows as a Cause of Damaging Fires*, The New York Times, October 23, 2020.

ConnectGen, as part of a broader discussion of Emergency Scenarios in its Application to Albany County for a Section 12 permit (beginning at page 346 of 1370), proposes the following to address lightning:

During the spring and summer months (May through October) thunderstorms have the potential for producing damaging winds, hail, lightning, and tornados. The Construction or

RESPONSE(S)

Western Area Power Administration

0053-02

The *Rail Tie Wind Project Wildland Fire Background* memorandum has been updated to include a reference to incidence of lightning strikes. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and available in the Project administrative record.

COMMENT(S)

0053: Alan B. Minier, continued

Operations Site Manager (or designated person), are responsible for monitoring the area for inclement weather. The supervisor(s) will announce a temporary work interruption, site evacuation, shelter in place or other emergency action, if deemed necessary....

In the event of storm events that produce lightning, work will be stopped in all towers onsite. Once lightning has been observed within 50 miles of any tower, personnel up tower will prepare to evacuate. Towers will be evacuated when lightning is within 30 miles of any tower. The Lead Wind Technician, Construction or Operations Site Manager, or designated person will signal to evacuate and take shelter in vehicles or trailers.... (p. 354 of 1370)

0053-03

A commitment to ceasing operations while lightning is present in the vicinity of the project, that is, "within 30 miles of any tower," would be a significant safety measure, since it would forestall the creation of "up lightning" capable of being spread over wide areas. The quoted commitment is ambiguous with regard to whether it only applies to the construction phase, or will continue through operations. I think it is important that the commitment continue for the life of the Project.

0053-04

However, the Application language is too vague about how the operator will anticipate the threat and cease operations. Specifically, it is not clear how the "Operations Site Manager (or designated person)" will monitor the area for inclement weather; for example, if the idea is to simply look out the window an office located on the O&M Site depicted in the Figure 2 Site Plan, a view to the west will be largely obscured by Boulder Ridge. This problem could presumably be solved by the use of a simple lightning strike application, something that could easily be monitored from the phone of any worker. But the DEIS should say.

More important, it is not clear whether the supervisor authorized to cease operations is free to ignore the hazard on the grounds that action is not "deemed necessary," and if so, so the DEIS should clarify what guidance the operator must provide its supervisors.

For neighbors of the Project concerned about lightning, many of the proposed measures are of modest interest. For example, compliance with the National Electric Safety Code and National Fire Protection Association benefits the turbine owners because those standards focus on protection of the turbines, rather than anyone offsite, largely because the operator's proposed firefighting strategy is to let its turbines burn, and focus on containing wildfires that result from falling debris.

0053-05

In fact, it appears that the Applicant intends to mainly rely on rural volunteer fire departments to deal with the fire risks created by the Applicant's industrial enterprise. According to the DEIS, the plan for dealing with wildfire is largely this: "Should a fire occur in the Project Area, local fire departments would respond....Local fire departments would respond to fires in the Project Area to prevent fire from spreading and extinguish them." (DEIS, p. 75 of 357) This sounds a lot like assuming that fire is the County's problem, and implies that surrounding neighbors must assume a degree of the risk introduced by the Project. I do not know what residents were gathered to discuss fire risk (DEIS p. 179 of 357), but I was not among them.

0053-06

The defense that Project equipment would be operated "in accordance with manufacturer's parameters" is misleading, because those parameters have never been disclosed for the proposed

RESPONSE(S)

Western Area Power Administration

0053-03

ConnectGen has committed to stop any construction work on turbines if lightning occurs within 30 miles of the Project Area. This commitment does not apply to Project operations. The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a reference to the incidence of lightning strikes. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire" and is available in the Project administrative record. As described in section 3.16.4, "Baseline Description," WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

0053-04

As noted by the commenter, this information was provided by ConnectGen (in their Emergency Response Plan) as part of the Albany County permitting process, a separate process from WAPA's NEPA process for interconnection. WAPA has incorporated additional information in the EIS related to ConnectGen's commitments within the Albany County permit, including the commitment to monitor for and manage construction and operation for inclement weather per their Emergency Response Plan.

0053-05

See page C-133 for response.

COMMENT(S)

0053: Alan B. Minier, continued

RESPONSE(S)

Western Area Power Administration

0053-05

As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

COMMENT(S)

0053: Alan B. Minier, continued

0053-06, turbines. (DEIS, p. 246 of 357)
continued

0053-07 I believe the fire analysis falls short because it does not accurately account for the firefighting capabilities of Albany County Fire District #1, and because it ignores the degree to which the Project is surrounded by residential properties. Neither of the two Volunteer Fire Departments in the area is rated to fight structural fires, and the professional firefighters who can fight structural fires are based in Laramie.

0053-08 In the absence of improved firefighting capabilities, the owner/operator of the Project should be obliged to install fire suppression equipment in the turbine nacelles, thereby reducing the risk that an uncontrolled turbine fire will spread from the Project footprint.

0053-09 Even if that problem is addressed, the owner/operator should be obliged to specify measures for monitoring lightning storms, and specify the means for temporarily ceasing operations in the event of a lightning storm.

II. The depth of bedrock and its implications

The DEIS tells us, "Soils present are generally shallow (**less than 40 inches to bedrock**) and derived from weathered bedrock and alluvial deposits...Rock outcrops are present and common throughout the analysis area." (DEIS, p. 152 of 357) In the separate Geology and Soils Technical Report supporting the DEIS, recounting information from two geotechnical studies related to the area, we learn that "The studies concluded that wind project design in this area should consider the possibility of shallow bedrock and difficult excavation." (p. 12 of 28) "Although specific areas of shallow granitic bedrock were not identified in the two geotechnical investigations, the borings were only completed in a portion of the Project Area. The potential presence of shallow granitic bedrock could impact construction activities and may require more intense excavation activities such as blasting or hydraulic hammering." (Id., p.16)

Since the turbine foundations are expected to be 10 to 12 feet deep (DEIS p. 4 of 35) in an area where soils are shallow, bedrock excavation for turbine pads appears unavoidable, and with it, the likelihood of blasting in some locations.

The same can be said for the County Roads that will be an integral part of the Project. "Existing public roads would be used and/or improved to the extent possible." (DEIS, p. 45 of 357). The specified improvements will entail major changes: the roads will be 100 feet wide, with a minimum turn radius of 200 feet. (DEIS, p. 46 of 357) The DEIS states that roads will be designed "to follow existing contours," (GEO-3, DEIS p. 61 of 357) but the fact of the matter is that the existing county roads already do just that, and it remains difficult to reconcile the existing roads with the required widths and turn radii. A large number of rock outcrops must be reshaped or removed, and blasting seems the likely method for doing so.

Finally, trenches for collection lines are described variously as "approximately 48 inches" deep (DEIS, p. 280 of 357) and "approximately 3 to 6 feet below the ground surface." (DEIS, p. 238 of 357). At that depth, encountering bedrock is likely. The possibility of blasting is ameliorated by the possibility

RESPONSE(S)

Western Area Power Administration

0053-06 The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2. As described in section 2.2.6, "Environmental Protection Measures," ConnectGen has committed to numerous measures designed to ensure safe and reliable operation of the Project.

0053-07 See response to comment 0053-05.

0053-08 The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about the availability of additional fire resources as part of wider state and federal dispatch and mutual aid across the region and how that bolsters local fire department response. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record. As described in section 3.16.4, "Baseline Description," WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

0053-09 See response to comment 0053-08.

COMMENT(S)

0053: Alan B. Minier, continued

that collection lines may not be buried after all: "If underground electrical lines are not technically or economically feasible in some areas, overhead electrical lines would be used." (DEIS, p. 47 of 357) In other words, the owner/operator may eventually decide to make the Project even more unsightly than it will already be through the addition of miles of collection lines.

0053-10

According to the Application and the DEIS, the main palliative for blasting will be a Blasting Plan prior to construction that will comply "with all applicable local, state, and federal regulations." (Application, p. 32 of 1370; DEIS, p. 67 of 357; see also Environmental Protection Measure GEN-1, p. 57 of 357) Such plans will supposedly include limiting blasting or hydraulic hammering to daylight hours (DEIS, p. 109 of 357), and "the use of properly licensed personnel and obtaining necessary permits and authorizations." (DEIS, pp. 179 and 186 of 357) However, over the past few months, Albany County – with the support of ConnectGen and its rancher lessors -- has refused to consider amendments to its Commercial Wind Energy Siting Regulations to address blasting, so there appear to be no local regulations to enforce. A plan to conform to regulations that do not exist is not a plan at all.

At a minimum, the DEIS should spell out what the elements of a blasting plan for this Project should be, and how it is to be enforced.

III. Enforcement of the EPMs

The fact that the DEIS assures us that Environmental Protection Measures "are an integral part of the Project" (DEIS, p. 306 of 35) provides no comfort. At a recent meeting of the Albany County Planning and Zoning Commission, the County Planner readily conceded that the County's principal enforcement tool would be to ask the owner/operator to modify its behavior, shrugging off the question of what happens if the owner/operator declines to do so, with vague references to the courts. The DEIS nonetheless asserts that, "Project activities describe in this Project Description document would incorporate and be subject to the EPMs and requirements imposed as a part of federal, state, or local permits and authorizations." (Id.) Perhaps it is too much to ask of a comprehensive discussion of how the EPMs will be enforced, but it is not too much to ask what authorities and responsibilities WAPA claims with respect to the listed EPMs. The DEIS should be revised accordingly.

0053-11

Thank you for this opportunity to comment.

Sincerely,

Alan B. Minier
8907 Cowpoke Road
Cheyenne, WY 82009
and
91 Bobcat Ridge Road
Tie Siding, Wyoming

RESPONSE(S)

Western Area Power Administration

0053-10

A Blasting Plan will be developed by the general construction contractor prior to construction if final geotechnical engineering determines blasting is necessary. The Blasting Plan, and measures proposed, would be in compliance with applicable State and local regulations. All blasting, if needed, would be performed by a licensed blasting contractor.

0053-11

EPMs and requirements described in the EIS are adopted and imposed as part of Federal, State, or local permits and authorizations.

COMMENT(S)

0054: Wendy Estes-Zumpf

From: Wendy Estes <estes_wendy@hotmail.com>
Sent: Monday, May 17, 2021 4:31 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Draft EIS public comment

To Whom It May Concern,

Below are comments on the Rail Tie Wind Draft EIS. I have also submitted these concerns via the online comment form.

Avian Resources

The draft EIS does not consider studies conducted to inform siting of wind energy developments relative to impacts on wildlife in Wyoming (Fargione et al. 2012; Pocewicz et al. 2013). The goal of these studies was to identify areas with high wind energy potential and low impacts to wildlife resources. The proposed project falls in areas identified by both studies as having high impacts to wildlife relative to other areas with high wind energy potential. **These studies need to be considered when siting the proposed project.**

The avian study recorded only 2 species of waterfowl (Canada Goose and American Pelican). This is likely due to the sampling design. The project area is in an avian migration corridor (Pocewicz et al. 2013) and numerous species of migratory birds have been documented regularly fly through the project area in the spring and fall, with highest concentrations in the spring. Species commonly seen include Snow Geese, Canada Geese, Sandhill Cranes, and multiple species of gulls and ducks.

Although the outside the project area, many of these waterfowl and riparian birds use the various national wildlife refuges in the Laramie Plains (including Hutton Lake NWR), plains lakes, and riparian corridors throughout the Laramie basin as migration stopover points as well as nesting and feeding grounds. The stopover areas draw migrating waterfowl and riparian birds down. During spring migration, these avian species migrate through the project area in large flocks. During bad weather (storms, fog, etc.), entire flocks fly much closer to the ground, making them much more likely to be killed by direct collisions with wind turbines. The draft EIS downplays the magnitude of likely waterfowl and riparian bird mortalities due to wind turbine collisions and the subsequent population-level impacts.

The project area is known to support many raptors, including Golden Eagles. The study cited in the draft EIS (WEST 2019b) documented 47 observations of Golden Eagles. The study also found that 56.7% of diurnal raptors were observed flying at RSH heights. The draft EIS downplays the likelihood of raptor mortalities due to wind turbine collisions and subsequent population-level impacts.

The draft EIS does not provide estimates of the number of Golden Eagles and other raptors expected to be killed by wind turbines. The draft EIS should provide data on how the density of eagles and other raptors in the project area compares with densities prior to wind energy development in other areas and the number of turbine collision mortalities in those areas after development.

0054-01

RESPONSE(S)

Western Area Power Administration

0054-01

See page C-137 for response.

COMMENT(S)

0054: Wendy Estes-Zumpf, continued

0054-01, continued
 Considering the number of Golden Eagles in the project area, the project should pursue an Eagle Incidental Take Permit under the US Fish and Wildlife Service.

On page 129, the draft EIS states that, “a Bird and Bat Conservation Strategy (BBCS) would be developed and implemented to avoid and reduce potential impacts to avian and bat species that could result from the Project.” However, strategies proposed do not include ANY to avoid or reduce potential impacts from wind turbine collisions, despite stating in the preceding paragraph that “wind turbine collision fatalities during the operational stage of the Project are expected to be the primary adverse effect on avian species.” **Proven effective BBCS need to be identified and implemented to avoid or reduce impacts from wind turbine collisions.**

0054-02
 4.3.4 Cumulative Impacts – The draft EIS states, “Past and present actions within the cumulative impacts area for avian and bat species were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area.” The draft EIS does not do a sufficient job of addressing the cumulative impacts to avian and bat species, particularly migratory species. The draft EIS needs to take into consideration the high-impact avian migration areas already heavily impacted by large-scale wind energy developments (i.e., Chokecherry, Sierra Madre, multiple facilities in the Shirley Basin, etc.; Pocewicz et al. 2013). In addition, wind energy developments between Cheyenne and Laramie are already present in additional high-impact avian areas. **The cumulative effects of wind turbine avian fatalities due to consistent placement of large-scale wind energy development in important migration corridors in Wyoming needs to be considered, particularly the population-level effects of these combined facilities.**

0054-03
 p. 127 mentions that disturbed vegetation communities could be beneficial to European Starlings. European Starlings are not native to North America. They are highly invasive and outcompete native birds for food and nesting resources.

References

Fargione, J., J. Kiesecker, M. J. Slaats, S. Olm, 2012. Wind and Wildlife in the Northern Great Plains: Identifying Low-Impact Areas for Wind Development. PlosOne 7:e41468

Pocewicz, A., W. A. Estes-Zumpf, M. D. Andersen, H. E. Copeland, D. A. Keinath, H. R. Griscom. 2013. Modeling the Distribution of Migratory Bird Stopovers to Inform Landscape-Scale Siting of Wind Development. PlosOne 8: e75363.

Big Game

0054-04
 In 3.4.6, the draft EIS says that population level impacts to big game are not anticipated. There are no data to support this. Although research on the impacts of wind energy development are limited, on p. 109 the draft EIS discusses several studies where impacts have been noted. The EIS then cites two documents it uses to assert that big game species do not necessarily abandon habitats within or adjacent to wind energy facilities. These documents should be viewed with caution. The Tetra Tech 2020d is not a study. It only references reports that big game have been observed in the vicinity of wind turbines. Observations were not part of pre- and post- habitat use by big game species. The other study cited (Walter et al. 2004) is a presentation at regional conference of The Wildlife Society. In this study, 10 elk were tracked and were not found to not significantly alter their home range or diet; however, the draft EIS fails to point out that elk in this study were dependent on crops in the project area for forage during winter and that the two distance metrics used provided conflicting results, with one metric showing movement away from the wind facility in 6 of 10 months.

RESPONSE(S)

Western Area Power Administration

0054-01
 We did not consider Fargione et al. (2012) or Pocewicz et al. (2013) due to scale issues. Broad-brush predictive modeling has limitations for site-specific analyses due to the practice of “painting” broad swaths of land as sensitive without considering local conditions. Predictive modeling can provide a guide only. The draft EIS relied on site-specific and local scale data for its analyses. With respect to Fangione et al. (2012), that publication identifies low-impact areas in relation to wind power class, areas of disturbance, and broadly identified conservation areas. It is unclear why the Project Area is not considered a low-impact area since none of the conservation areas appear to overlap the Project Area. The lack of a low-impact designation appears to be due to an absence of existing disturbance in the Project Area and not as result of its designation as a habitat conservation priority area. With consideration to Pocewicz et al. (2013), and specifically in reference to Figure 2, nearly the entire state of Wyoming would be considered an important avian migration concentration area if we pooled all suites of birds together. Such broad-brush application is not meaningful for site-specific analyses. Moreover, the authors recognized that some species are not well-represented by the models. For instance, the authors noted that bald eagle, ferruginous hawk, and Swainson’s hawk migration patterns did not fit the raptor migration model due to specific habitat needs (pg. e75363). Therefore, the draft EIS relied on the avian use studies conducted for the Project Area, which provided site-specific data on which avian species are present in the Project Area. Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS’s *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds.

0054-02
 See page C-138 for response.

0054-03
 Comment noted.

0054-04
 See page C-138 for response.

COMMENT(S)

0054: Wendy Estes-Zumpf, continued

RESPONSE(S)

Western Area Power Administration

0054-02

The analysis areas considered for avian and bat species and described in section 3.5.3 account for anticipated effects from the Project to these resources. As such, these same analysis areas were used to account for the cumulative effects on these resources from other past, present, and reasonably-foreseeable future actions in addition to this Project. Other past and present effects were accounted for in the affected environment (generally characterized as rural in nature, including transportation development and utility development). No reasonably-foreseeable future actions were identified within the analysis areas for avian or bat species. Since the cumulative effects analysis relies on the assumption that in order for a cumulative effect to occur a direct or indirect effect from this project must occur, the analysis area for cumulative effects match those of the direct and indirect effects contained in Section 3.0 of the EIS. This approach provides the most defensible analysis area when considering a resource such as migratory animals, where biological-based establishment of a specific boundary may not be feasible.

0054-04

In the draft EIS, impacts to HMUs are assessed in an attempt to understand impacts to big game species habitat at the population and community levels. For each big game species assessed in the draft EIS, less than 3 percent of the available HMU overlaps the Project Area, supporting our claim that we do not expect community- or population-level impacts. The draft EIS was written using the best available, peer-reviewed science. We have retained Walter et al. (2004) in our analyses since it is the best available science. However, we added text for clarification on its comparability with the study area.

COMMENT(S)

0054: Wendy Estes-Zumpf, continued

Economic Impact

0054-05

The draft EIS states “the Project would not be expected to materially decrease the property values for nearby homes. This claim is not substantiated. Citations used in the draft EIS to support no decrease in property value have been cherry-picked and there is no mention of multiple studies and even court rulings where property losses of up to 55% have been documented. The draft EIS needs to 1) provide an unbiased summary of the impacts of wind energy development on property value, and 2) redo their economic impact analysis so that it includes the range of possible economic impacts possible due to decreased property value and the resulting decrease in revenue from property tax.

Thank you in advance for addressing these concerns.

Wendy Estes-Zumpf

 Virus-free. www.avast.com

RESPONSE(S)

Western Area Power Administration

0054-05

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0055: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Sunday, May 16, 2021 7:51 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project Nest Survey Report

0055-01

Survey report shows that raptors exist. This area is also home to the American Kestrel a very small bird in decline (Reference nestwatch.org). A helicopter cannot see these. The building of the wind turbines and their operating noise will hurt many nests as well as the smaller birds nesting in our area. One of the reports indicates that the project will rip out native vegetation that supplies food to hummingbirds and smaller types of birds. Pollinators and small birds are very important to the climate. Environmental permits shall not allow any pollinator/small bird vegetation or nesting habitat be disturbed.
Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0055-01

Comment noted. Impacts to raptors and other avian species, including the effects of noise and vegetation disturbance, are considered in section 3.5, “Avian and Bat Species.”

COMMENT(S)

0056: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Sunday, May 16, 2021 7:35 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project Wildfire Smoke Impact to Substations

0056-01

This area is also prone to heavy lingering smoke that comes from surrounding area wildfires and sits over the area for an extended period of time. This poses a safety risk for building huge electrical substations that will sit in smoke filled areas that could lead to a fire risk. A 34.5KV substation is not as huge as a 345KV substation. How will this local residents and wildlife be protected?
Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0056-01

Comment noted. The Project's impacts to the risk of wildfire are considered in section 3.16, "Wildland Fire."

COMMENT(S)

0057: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Sunday, May 16, 2021 8:17 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Project: Local Road Report

0057-01

Monument Road is not set up for heavy traffic that will block local access to town. Siting should insure that narrow county roads will not be blocked for local travel and that they do not create wildlife accidents. Monument Road is barely maintained and sections of Monument road are blocked in the winter time. Additionally, snowy roads are not cleared immediately. The wind makes it unrealistic to think that snow plowing occurs after the snow ends.
Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0057-01

ConnectGen has prepared an Emergency Response Plan and a draft Transportation and Traffic Management Plan (to be completed once final haul routes are determined) as part of their application to the ISC and in coordination with the appropriate State of Wyoming and Albany County agencies, including emergency services.

COMMENT(S)

0058: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Sunday, May 16, 2021 7:27 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Surface Water and Groundwater Report

0058-01

The water demands listed in the WAPA report are way too great for an area of this size. This area does not have an enormous water capacity. The size of the proposed project needs an area that has extensive water supply. Local users will be negatively impacted affecting their grazing land, pollinator vegetation and local fishing .
Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0058-01

Comment noted. The Project's impacts to water supply for humans and wildlife are considered in section 3.15, "Wetland and Water Resources."

COMMENT(S)

0059: Barbara Potenzano

From: bam@outdrs.net <bam@outdrs.net>
Sent: Sunday, May 16, 2021 8:07 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Rail Tie Wind Turbine Placement to Avoid Flashing Lights in Residential Windows

0059-01

The placement of the wind turbines should not be such that their location is in line with residential windows within several miles of viewing. Currently, the wind turbines several miles east are placed in viewing of our windows and the flashing lights are seen. Siting considerations should not permit that the height of the wind turbines cause flashing lights in the windows of local residents. These lights should be eliminated, or the height should be lowered for that turbine or that turbine placement location should be moved so that the flashing light lights are not in residential windows. This should be a universal policy of all wind farms.
Barbara Potenzano

RESPONSE(S)

Western Area Power Administration

0059-01

Comment and preference noted. Section 3.2, “Aesthetics and Visual Resources,” considers the impact of FAA warning lights. Section 2.2.6, “Environmental Protection Measures,” includes conditions of the Industrial Siting permit for the Project, including requirements for the use of ADLS. As described in the Executive Summary, section ES 4, “Western Area Power Administration’s Proposed Federal Action,” and section ES 4.4, “Proposed Federal Action Alternative Considerations,” WAPA’s role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency’s Tariff and the Federal Power Act. WAPA’s decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA–managed transmission system. Thus, although ConnectGen’s Project is considered a connected action to WAPA’s Federal decision of granting an interconnection to the agency’s transmission system, WAPA lacks the authority to site ConnectGen’s Project at a different location, to change the Project’s generation technology (e.g., wind vs. solar), to direct the location of particular turbines, to direct the type/size of turbines used, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA’s EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC

Robert W. Rand, ASA, INCE (Member Emeritus)
RAND ACOUSTICS, LLC
65 Mere Point Road
Brunswick, ME 04011
E-mail: rrand@randacoustics.com
Telephone: 207-632-1215

May 17, 2021

VIA ELECTRONIC MAIL

Mark Wieringa
NEPA Document Manager
Western Area Power Administration, Headquarters
P.O. Box 281213
Lakewood, CO 80228-8213

RailTieWind@wapa.gov

Re: Acoustical Assessment Letter Review
Rail Tie Wind Project Draft Environmental Impact Statement

Dear Mr. Wieringa,

On request of neighbors, I respectfully submit this letter review addressing a report entitled "Acoustical Assessment Technical Report" (Report) prepared for ConnectGen Albany County LLC by Tetra Tech Inc. of Golden, CO, revised April 2020. That Report is part of the record for the Rail Tie Wind Project Draft Environmental Impact Statement [1].

The Report differs in turbine size, sound power level, and locations from the most recent, similar acoustical report entitled "Acoustical Assessment Technical Report" prepared for ConnectGen Albany County LLC by Tetra Tech Inc. of Golden, CO, revised *January 2021*, stamped 1/29/2021 by a registered professional engineer, John P. Patton, IV. Significant omissions were found during peer-review analysis that determined the January 2021 report to be *incomplete* and *inaccurate*. Those omissions were documented in a technical memorandum from Rand Acoustics to the County of Albany Commissioners on April 6, 2021. I understand that despite the serious report deficiencies covered in the memorandum, Commissioners voted the application "complete".

The Report of April 2020 being used by WAPA contains similar deficiencies as found in the January 2021 version used by the County. Turbine locations shifted substantially between April 2020 and January 2021. Turbine noise levels in the April 2020 Report are 5 to 7 dB louder at distances to nearest residential properties compared to the January 2021 report.

I understand via neighbor communications that WAPA stated it uses "the loudest turbines on the market to show what noise levels could be"[2]. However the April 2020 Report clearly shows the facility breaches Albany County property line noise limits, and noise emissions crossing property lines would be incompatible with nearby quiet residential land use, with potential for sleep disturbance certain at nearby residential properties.

This letter provides review details and summary below.

1 <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>
2 Communication with M. White re WAPA, 4/28/21.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
Rail Tie Wind Project Environmental Impact Statement
Page 2 of 12

REVIEW DETAILS

1. The Report states (3.3.1), "Albany County Siting Regulations (Chapter 5, Section 12, G.3 (a)-(c)) limit noise from commercial wind energy facilities to 55 A-weighted decibels (dBA) as measured at a point along the common property lines between a nonparticipating property and a participating property." However, the actual wording in the regulation is,

*"Noise. Noise associated with WECS operation shall not exceed fifty-five (55) dBA as measured at any point along the common property lines between a non-participating property and a participating property.
a. This level may be exceeded during short-term events such as utility outages, severe weather events, and construction or maintenance operations.
b. This standard shall not apply along any portion of the common property line where the participating property abuts state or federal property.
c. Noise levels may exceed the fifty-five (55) dBA limit along common property lines if written permission, as recorded with the Albany County Clerk, is granted by the affected adjacent non-participating property owners."* (emphasis added.)
2. The regulation states, "**shall not exceed**". This is easy to understand and by best practices, is taken as written. There is no averaging or averaging interval. The "shall not exceed" noise limit is similar to the speed limit on a road. Driver speed is assessed by the highest speed, not the average speed.
3. This review didn't find language or definitions in the Albany County Siting Regulations that support noise levels breaching 55 dBA as long as a theoretical long-term average is less than 55 dBA. The Regulations have no qualifiers or "metrics" for averaging noise over time.
4. Without having access to any information regarding the intentions of the drafters of the County regulations, my experience as a professional noise control consultant designing to prevent complaints agrees that the reasonable, simplest application of the County "shall not exceed" noise limit is to be assessed using the highest sound levels (instantaneous or Lmax, Fast response) measured at the lot line.
5. Maximum noise levels can be up to 11 dB over average Leq. During a special land use application (SLUP) in Almer Township, Michigan in 2016, evidence was submitted by wind industry consultants (RSG, Inc. and Epsilon Associates to Tuscola Wind III, LLC) [3] documenting their wind turbine noise measurements during the MassCEC Study [4] having determined ranges of Lmax values from 6 to 11 dB greater than the Leq and stating "*For this study, to be conservative, we are using an additional 11 dB adjustment above the +2.0 dB already modeled.*" (Lmax = Leq + K + 11, dBA).

3 Memo, from Ken Kaliski, P.E., INCE Bd. Cert., RSG Richard Lampeter, Epsilon Associates to Ryan Rumford, NextEra Energy Resources, December 22, 2016.

4 RSG et al, "Massachusetts Study on Wind Turbine Acoustics," Massachusetts Clean Energy Center and Massachusetts Department of Environmental Protection, 2016.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
Rail Tie Wind Project Environmental Impact Statement
Page 3 of 12

6. On November 3, 2017 the Honorable Thomas L. Ludington affirmed the decision of the Almer Charter Township Board of Trustees denial of a Special Land Use Permit ("SLUP") for the Tuscola Wind III Wind Energy Center [5].

"The Township's noise expert opined that most sound experts would read the Almer Township Zoning Ordinance as imposing an Lmax standard, confirmed that the Lmax standard is a valid metric, and identified a specific municipality where the noise emissions ordinance utilizes an Lmax standard. Against this factual background (and considering the plain language of the statute), the Township Board's conclusion that §1522(C)(14) imposes an Lmax standard was reasonable."

Further, "...when an ordinance is ambiguous, courts must apply principles of statutory interpretation. "Unless defined in the statute, every word or phrase of a statute should be accorded its plain and ordinary meaning, taking into account the context in which the words are used." *Alcona Cty. v. Wolverine Envtl.*"

7. While Michigan law may not directly affect proceedings in Wyoming, the decision reflects to this reviewer that the Michigan Court respected the local regulatory authority's reasoned interpretation of its Zoning Ordinance accepting an instantaneous or Lmax metric as consistent with the plain wording of the ordinance, and rejecting the Leq as an insufficient metric for the "shall not exceed" noise limit.
8. A comprehensive survey of 491 noise regulations across the United States [6] found that the Leq is rarely used. Of 491 regulations reviewed in the Blomberg analysis, most decibel noise ordinances specify a specific instantaneous maximum A-weighted value, the same as Albany County. This is similar to the speed limit on a road. Only 40 communities (8 percent) use an Leq metric. Many of those also require an instantaneous not-to-exceed limit. The Leq time period of those limited ordinances that use Leq ranges from 1 minute to 24 hours. The Leq average noise level hides the noise signature, does not report the highest level and opens the door to arguments about compliance. A speeding ticket is given for exceeding the speed limit at any time, not for the driver's average speed. Averaging hides non-compliance and complicates enforcement.
9. Standard professional practice in noise control includes: In the absence of a declarative prescription of Leq, the use of Lmax or maximum levels is appropriate for assessing noise level for a "shall not exceed" regulation. The Lmax can be determined following longstanding practice and as per IEC 61400-11 with time series analysis [7].
10. Whereas, the Report uses the Leq average sound level for its sound modeling, ignores known noise fluctuations, and concludes that the Project will not exceed 55 dBA at all project property lines. See this review's Figure 1 below, which provides the Report's predicted average sound levels.

⁵ Honorable Thomas L. Ludington, Opinion and Order Affirming the Decision of the Almer Charter Township Board of Trustees, Case No. 17-cv-10497, 1:17-cv-10497-TLL-PTM Doc # 39 Filed 11/03/17.

⁶ Blomberg, L., Preliminary Results of an Analysis of 491 Community Noise Ordinances, NOISE-CON 2016, Providence, RI, 2016. Noise Pollution Clearinghouse, Montpelier, VT 05601, nonoise.org.

⁷ Section A.5 "Amplitude modulation of the broadband noise", IEC 61400-11 Ed.2.1, 2006.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 4 of 12

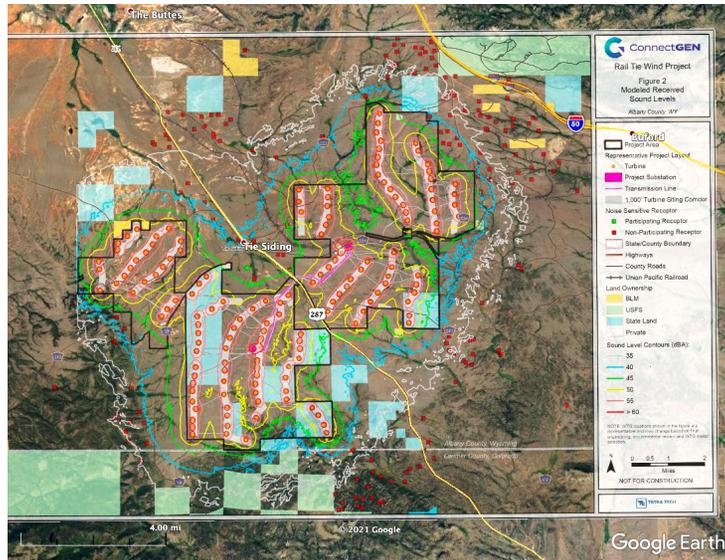


Figure 1. "Modeled Received Sound Levels" (Report Figure 2).

11. This review's Figure 2 below provides the Report's predicted average sound levels closer up, at the southern project property lines. Conservative adjustments of +11 dB are noted based on documented wind turbine fluctuations discussed earlier. Fluctuations include amplitude modulation occurring at the blade pass rate and coincident addition of multiple turbines' modulating noise emissions. The conservative adjustments show the highest fluctuating sound levels associated to the Report's predicted contour levels.
12. When project noise levels are evaluated using wind industry consultants' conservative acoustic factors documented during legal proceedings in Almer Township, Michigan in 2017, project noise levels would exceed 55 dBA at numerous PL locations. This is because fluctuating levels documented from industry testimony are up to 11 dB higher than the average levels used in the Report. Because many turbines are sited very close to property lines, many thousands of feet of project property line are projected to encounter fluctuating wind turbine levels exceeding 55 dBA.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 5 of 12

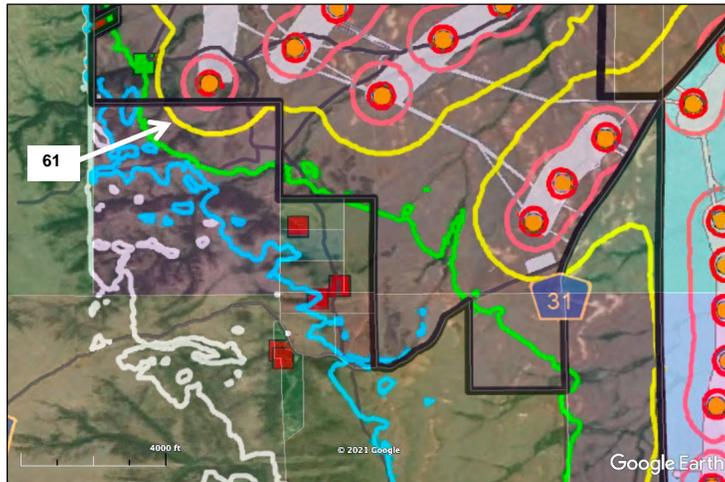


Figure 2. Modeled Received Sound Levels, at southwest property lines. Green and yellow lines are 45 and 50, respectively. Predicted 55-dBA sound levels (pink) apparently fall outside the leased land area, breaching Albany County noise compliance. Fluctuating wind turbine noise levels from industry testimony are up to 11 dB higher than the predicted average, marked with arrows showing the ratio from Leq-50 (yellow) fluctuating up to 61 dBA. Thousands of feet of project property line have predicted average, or fluctuating, wind turbine levels exceeding 55 dBA.

- The Report omitted manufacturer's highest fluctuating noise data acquired via IEC 61400-11 Annex A. Comprehensive IEC 61400-11 noise tests would necessarily include acquiring non-averaged, fluctuating amplitude modulation noise levels under various wind conditions. Maximum noise levels determined from IEC 61400-11 Annex A.5 are undoubtedly available from Vestas, who most certainly has exercised its due diligence and measured every permutation of sound output and amplitude modulation ranges including highest fluctuating or Lmax noise maximum levels for its turbine models, under a wide variety of atmospheric conditions including shear and low level jetting.

The IEC 61400-11 test standard for wind turbines includes guidelines in its Section 7.2.4 for manufacturers to quantify noise emissions that have a definite character not captured by the standard's Leq measurement procedures. Such noises may include (paraphrased) low frequency and infrasonic noise, amplitude modulation, impulses in the wind turbine noise, or noise that is sufficiently distinctive to grab the ear's attention. The reader is directed to the standard's Annex A. In IEC 61400-11 Annex A section A.5, IEC 61400 states that modulation is possible and can be quantified by acquiring the A-weighted sound level with Fast response for at least ten blade passes by the turbine. Section A.5 states that modulation can be influenced by local atmospheric conditions and such conditions should be recorded during measurements; "Amplitude modulation of the broad

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 6 of 12

band noise", to fully characterize the noise output of the device under test, which would necessarily include fluctuating and Lmax levels in the amplitude modulation data. In Section A.6 "Other noise characteristics", IEC 61400-11 authors state, "*As full a description as possible of the noise should be given in words, and any measurements that illustrate the nature of the noise should be taken.*"

14. The Report is considered incomplete by omitting safety margins. Safety margins are a best engineering practice. Wind turbine fluctuating noise levels can be much higher than averages and that creates a problem for modeling. Wind industry manufacturer Vestas cautioned as far back as 2004 that Leq modeling requires a safety margin: "make sure hard terrain is used" (Report did not) and "site specific sound power levels should be used unless a good safety margin is present using standardized emission levels" [8].

It should be noted that wind turbine applicants sometimes state the "uncertainty" factor provided by the manufacturer in their test results is a safety margin. It is not. The uncertainty factor provides a qualifier of the range of noise output for a turbine make. The typical uncertainty factor (e.g. GE) is +/- 2 dB. Noise modeling must incorporate this published uncertainty factor because any turbine might be at the high end of the range of noise output. To omit this factor risks under-estimating the facility noise output. A separate noise design safety margin should be included in the noise model to account for variability in the real world compared to the computer model; the +/-3 dB uncertainty stated in the ISO 9613-2 algorithm, as well as atmospheric factors not accounted for in the model.

15. To review fluctuating level impacts, Report Figure 2 was imported into Google Earth Pro and scaled at the project location with a tolerance of +/- 50 feet. Project-predicted sound level versus distance was assessed by measuring distance to contours for two locations; 1) a turbine set apart from others, where hemispherical divergence could be obtained (6 dB per doubling of distance, the expected drop with distance for a sound source), and 2) sound levels with distance for a line of turbines, where the drop with distance is generally in the range of 3 to 6 dB per doubling. The results are shown in Figure 3 below.

16. All turbine locations were reviewed to determine which turbines might be too close to property lines. Predicted noise levels show that some 750 feet are needed for turbine *average noise levels* to comply with the Albany County noise ordinance. For average predicted noise levels, twenty-one turbines breach the ordinance; too close. Approximately 41 wind turbines are close enough to property lines for *fluctuating* noise levels to exceed the Albany County noise limit. Twelve of those turbines are on State land emitting into non-state, non-federal land.

⁸ Nielsen, N.C., Kristensen, E., Sondergaard, B., Problems related to the use of the existing noise measurement standards when predicting noise from wind turbines and wind farms. AUSWEA Conference, 2004.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 7 of 12

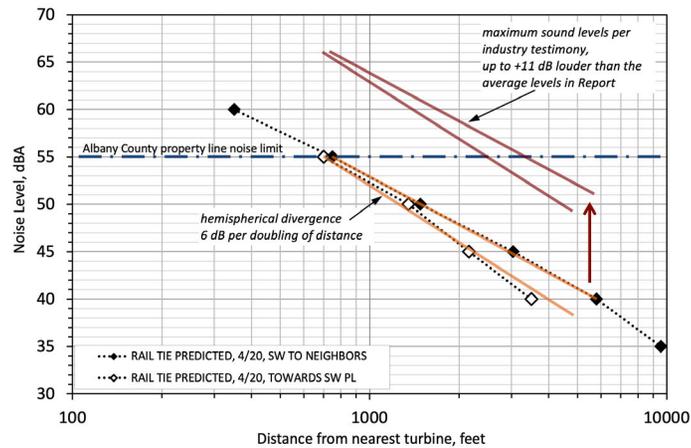


Figure 3. Modeled Received Sound Levels, near southern property lines, plotted for sound level versus distance (SLVD). SLVD for the single turbine provided 6 dB per doubling (black diamonds). SLVD for the line of turbines provided about 5 dB per doubling, within range of expectations for computer modeling.

17. As seen in Figure 3, once industry measured fluctuating decibel ratios are factored in: depending on turbine proximity to other turbines, a setback from property line of roughly 1/2 to 2/3 mile feet is needed to comply with County property line noise limits.
18. Recently in March 2021, independent noise testing by Rand Acoustics at a quiet rural home near the Antrim Wind Facility in Antrim, NH documented noise levels during sleep disturbance complaints from nine Siemens SWT 3.2-113 wind turbines, of which three are within 1 mile of the impacted home. The distances, 3670 to 5000 ft, are similar to distances between facility turbines and nearest Albany County neighbors. Predicted "worst-case" noise levels submitted by Epsilon Associates for Antrim Wind permitting in 2016 were 35.7 dBA at the impacted home. Contrary to Antrim Wind's predictions, measured fluctuating, short-term modulating wind turbines night noise levels reached 45 to 53 dBA; 9 to 17 dBA higher than Antrim Wind's "worst-case" predictions.
19. The highest intrusive that levels occurred at night woke neighbors from sleep. The figure below illustrates the range of noise levels measured in March 2021.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 8 of 12

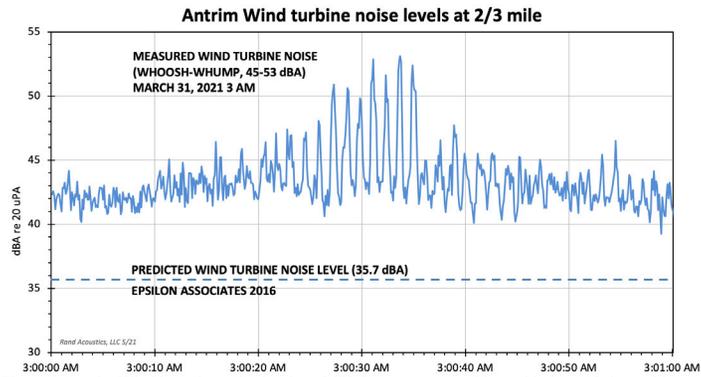


Figure 4. Antrim Wind intrusive noise levels at 3670 feet to nearest turbine, with three of nine turbines controlling the intrusive noise, 3/31/21 3:00-3:01 AM, Leq-0.1second, ANS-weighting. Blade pass modulations visible with depths of 4 to 11 dB. Several turbine noise fluctuations reached 50 to 53 dBA.

20. Real test data show that wind turbine noise is not "steady" and can significantly exceed predicted noise levels.
21. The WHO 2009 publication on Night Noise Guidelines [9] "offers guidance to policy-makers in reducing the health impacts of night noise, based on expert evaluation of scientific evidence in Europe." WHO Lmax sleep disturbance thresholds are shown below, "...all effects are summarized for which sufficient and limited evidence exists. For these effects, the threshold levels are usually well known, and for some the dose-effect relations over a range of exposures could also be established."(emphasis added). Indoors Lmax thresholds are noted in the figure below.

9 WHO Night Noise Guidelines (NNGL) For Europe, 2009. ISBN 978 92 890 4173 7.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 9 of 12

Effect	Indicator	Threshold, dB
	Change in cardiovascular activity	*
Biological effects	EEG awakening	$L_{Amax,inside}$ 35
	Motility, onset of motility	$L_{Amax,inside}$ 32
	Changes in duration of various stages of sleep, in sleep structure and fragmentation of sleep	$L_{Amax,inside}$ 35
Sleep quality	Waking up in the night and/or too early in the morning	$L_{Amax,inside}$ 42
	Prolongation of the sleep inception period, difficulty getting to sleep	*
	Sleep fragmentation, reduced sleeping time	*
	Increased average motility when sleeping	$L_{light,outside}$ 42
Well-being	Self-reported sleep disturbance	$L_{light,outside}$ 42
	Use of somnifacient drugs and sedatives	$L_{light,outside}$ 40
Medical conditions	Environmental insomnia**	$L_{light,outside}$ 42

WHO 2009 Executive Summary

Table 1 Summary of effects and threshold levels for effects where sufficient evidence is available

* Although the effect has been shown to occur or a plausible biological pathway could be constructed, indicators or threshold levels could not be determined.

**Note that "environmental insomnia" is the result of diagnosis by a medical professional whilst "self-reported sleep disturbance" is essentially the same, but reported in the context of a social survey. Number of questions and exact wording may differ.

Figure 5. WHO 2009 Executive Summary (Table 1) Summary of effects and threshold levels for effects where sufficient evidence is available.

22. Sleep disturbance should have been assessed. As testified by Audiologist Jerry Punch in 2019 for the Application of Alle-Catt Wind Energy LLC in New York [10], <<Although the WHO (2009) recommends 40 dBA as an average annual level, it states in the Executive Summary, page X: "Long-term effects such as cardiovascular disorders are more correlated with indicators summarizing the acoustic situation over a long time period, such as yearly average of night noise level outside at the façade ($L_{night,outside}$)...while instantaneous effects such as sleep disturbance are better (correlated) with the maximum level per event (L_{max})." Furthermore, as stated on page XIV, "Short-term effects are mainly related to maximum levels per event inside the bedroom: $L_{Amax,inside}$.">>

10 Direct Testimony Of Jerry L. Punch, Ph.D., Application of Alle-Catt Wind Energy LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 to Construct a 340 MW Wind Energy Project, Case No. 17-F-0282, State Of New York Board On Electric Generation Siting And The Environment, October 4, 2019.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 10 of 12

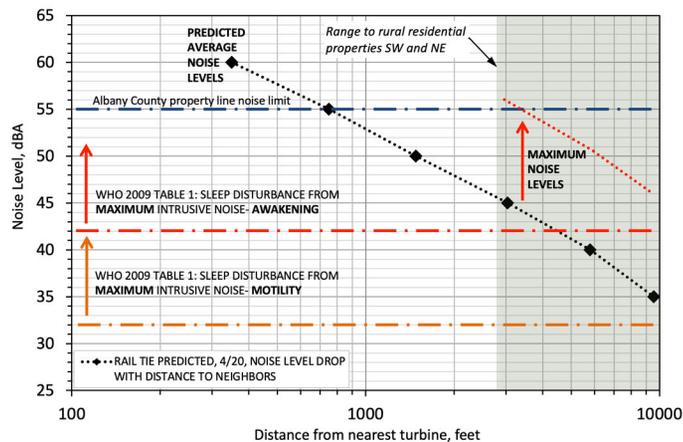


Figure 6. Noise predictions show facility intrusive noise levels would range into sleep disturbance levels published by WHO in 2009 Table 1. Sleep disturbance appears certain for nearest neighbors out to 4000 feet. Subtract 1-3 dBA from maximum noise levels to compare to WHO sleep disturbance thresholds (Vermont testing of large wind turbine outdoor to indoor noise reduction, 2014).

23. From Punch, <<The WHO is saying that annoyance, sleep disturbance, and other health effects are best avoided by limiting the maximum sound level of short-term, nighttime events, which is captured by the use of L_{Amax}. The low-frequency content of wind turbine sound makes those events potentially even more of a risk. In fact, the WHO (2009, quoting from WHO, 1999) states (p. 110) that “The thresholds are now known to be lower than L_{Amax} of 45 dB for a number of effects” and (p. 98) that “noise starts to induce arousals at L_{Amax} values in the range of 30-35 dB(A).” It also states (p. XIV) that “The relation between the (health) effects and L_{night,outside} is, however, not straightforward,” and further recommends that an L_{Amax} value of 42 dB,inside be used as the best estimate of the threshold for conscious awakening.>>

24. Probable maximum noise levels in Figure 6 should be compared to the indicated WHO indoors sleep health thresholds 32 and 42 dBA L_{max,inside} by subtracting 1-3 dBA from maximum outdoors noise levels (Vermont testing by two independent firms of large wind turbine outdoor to indoor noise reduction, 2014 [11]).

Using basic arithmetic, facility intrusive noise levels indoors at nearby properties with windows open are expected to exceed all WHO thresholds for sleep disturbance, including

11 "Acotech measurements in July 2014 under similar test conditions did generally agree with this value; and depending on the measurement location within the room, yielded an OILR value of about 1 to 3 dBA with the windows fully open.", Acotech Report to Vermont Public Service Department, Vermont Public Service Board Docket 7156, Acotech Project 624219, 25 September 2015.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 11 of 12

EEG awakening, onset of sleep motility, changes in duration of stages of sleep, sleep structure and fragmentation of sleep, and waking up in the night and/or too early in the morning. These impacts are supported by the complaints at Antrim of sleep disturbance and difficulty getting back to sleep.

25. The American National Standards Institute (ANSI) provides land use compatibility guidelines in S12.9 Parts 4 & 5. In short, long term average unfamiliar, intrusive sound levels under 30 dBA are compatible and levels over 35 dBA are incompatible with quiet rural residential land use at night (amenity). See this letter's Figure 7. Predicted facility noise levels are certain to breach ANSI threshold for incompatibility with quiet rural residential land use out to some two miles.

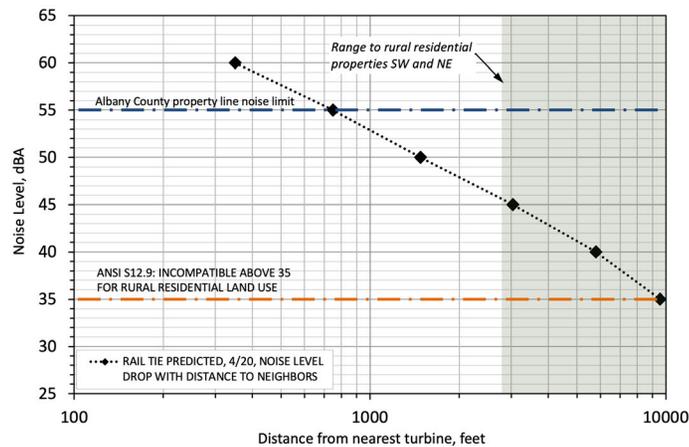


Figure 7. Noise predictions show facility intrusive noise levels would breach ANSI S12.9 guidelines for compatibility with rural residential land use at night at nearest residential properties southwest and northeast of the proposed facility.

26. ANSI land use compatibility speaks directly to impacts on rural serenity and amenity. When ANSI compatibility guidelines are observed for quiet rural land use, serenity and amenity is preserved. Whereas, the facility as currently designed predicts degradation of the nighttime rural amenity.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

Rand Acoustics, LLC: Acoustical Assessment Letter Review, May 17, 2021
 Rail Tie Wind Project Environmental Impact Statement
 Page 12 of 12

REVIEW SUMMARY

0060-01 1. Although the April 2020 Report appears to be technically sound, there are omissions that result in inaccurate conclusions. The Report's predictions are inaccurate by using average levels to assess compliance with the County "shall not exceed" property line noise limit. The Report omitted industry-measured fluctuating sound levels documented in wind turbine studies and testimony that run 6 to 11 dB louder than the long-term average sound levels used by the computer model software. Recent testing in Antrim New Hampshire found wind turbine noise levels exceeding predicted levels by up to 17 dBA.

2. The April 2020 Report omitted noise design safety margins. Due to close proximity to property lines, the Report actually shows predicted noise levels breaching the County regulations along portions of leased lands.

0060-02 3. Contrary to its title, the Report failed to assess for noise impacts- on sleep. Noise impacts that should have been assessed include 1) annoyance (stress), 2) sleep disturbance, and 3) impacts on amenity (rural quiet and enjoyment of home and property). Simply put, the facility turbines are too big and too loud for the close locations to facility property lines and neighbors needing sleep. Unlike all other power generation technologies, which have numerous noise control options available and time-tested: *For wind turbines, the only reliable noise control option is sufficient distance.* In order to comply with the Albany County property line noise limit, dozens of wind turbines would have to be relocated further away from leased land boundaries deeper into leased land.

0060-03 4. Given the changes between the April 2020 and January 2021 facility layout, and this author's understanding that turbine makes, models and locations could change again, there is no confidence that the facility design will comply with the Albany County property line "shall not exceed" noise limits and be sufficiently set back to prevent sleep disturbance and degradation of amenity at nearby residential properties.

5. INCE Rules of Practice require approving only noise control engineering studies, reports, or work which, to the best of the reviewer's knowledge and belief, is safe for public health, property, and welfare and in conformance with accepted practice. From years of work in power generation noise control, accepted practice includes assuring that a proposed facility will comply with regulatory requirements with an adequate margin of safety.

6. Opinions are given to a reasonable degree of scientific certainty. These opinions are based on the information available at the time of drafting this review. I reserve the right to supplement or revise should additional information come to light.

Thank you for your consideration of this technical review. If you have any questions, please contact me.

Respectfully Submitted,



Robert W. Rand, ASA, INCE (Member Emeritus)

RESPONSE(S)

Western Area Power Administration

0060-01 The Albany County Planning Department reviewed the January 2021 Acoustical Assessment Technical Report (Tetra Tech 2021c) as part of the Albany County WECS Permit application and prepared a staff report that accepted the technical report as complete. The staff report stated: "The applicant has sufficiently addressed this impact." The noise impact modeling was based on standard acoustic engineering methods that conform to ISO 9613-2, and the turbine sound power data was based on accepted International Electrotechnical Commission standard 61400-14. In addition, a 2 dbA confidence interval was included in the model, which is expected to result in a reasonable and conservative assessment of Project sound levels since it is unlikely that all WTGs would be operating concurrently at 2 dBA above the mean. Since the model evaluation reflected the maximum rated wind turbine sound power level, any fluctuations are expected to be less than what was modeled.

0060-02 The Albany County Wind Energy Siting Regulations limit noise from commercial wind energy facilities to 55 dBA, as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015).

0060-03 See page C-157 for response.

COMMENT(S)

0060: Robert W. Rand, Rand Acoustics, LLC, continued

RESPONSE(S)

Western Area Power Administration

0060-03

The analysis was expanded to include a range that ensures that all possibilities were captured in the analysis. The NEPA process began when ConnectGen was early in their engineering design, and as such was conducted to consider impacts from the range of turbine models being considered. ConnectGen is continuing to advance its design review of available turbine models—all of which have operating and physical characteristics that are within the minimums and maximums range of turbine models considered in the EIS. The Albany County wind energy siting regulations limit noise from commercial wind energy facilities to 55 dBA as measured at a point along the common property lines between a non-participating private property and a participating property (Albany County 2015). Although no NSAs are within areas that would be expected to experience levels above 55 dBA, there are some locations, primarily along the northern and northwestern portions of the Project Area, where modeling of the representative turbine layout shows a small overlap of sound levels slightly above 55 dBA at common property lines between a non-participating private property and a participating property (Tetra Tech 2021c:Figure 2). Should this turbine layout ultimately be chosen for the Project, and if written landowner permission cannot be obtained for those locations, micrositing of turbines may be necessary to avoid exceeding the 55-dBA county threshold requirements in those locations. At least 30 days before construction, the permittee shall submit to the ISC and Albany County Planning Department a supplement to the Acoustical Assessment Technical Report (Tetra Tech 2021c) to incorporate the results of sound modeling for the final site plan and turbine type selected for the facility (see section 2.2.6, “Environmental Protection Measures”). The supplement shall describe the permittee’s compliance with the Albany County wind energy and solar energy siting regulations (Albany County 2015).

COMMENT(S)

0061: Terry Opgenorth, continued

To: WAPA Public Comment Forum

From: Terry Opgenorth, land owner in the impact zone

Date: April 9, 2021

I would like to address two points that are not adequately addressed in the Technical Reports prepared for WAPA by ConnectGen LLC, and offer a compromise solution that addresses both issues. Before getting into the specifics, let me say that I'm in favor of reducing carbon emissions and support creation of wind farms. The Western Area Power Administration's (WAPA) Rail Tie Wind Project appears to be a reasonable plan, realizing that in all cases their are negative consequences to a project of this size and one with highly visible structures that cover a large land area and viewscape.

The project plan can be improved to reduce negative impacts on humans and wildlife with limited impact on overall power generation goals.

1. Biological Resources Report: Sections 4.7.2.7 & 5.4.2.3 - Big Game

Below I provide quotes from the Technical Report and EIS documents and specific comments relative to the report findings. I have highlighted quoted text from the reports in yellow that are most relevant to my comments.

A quote from Section 4.7.2.7: "The WGFD is responsible for protecting and maintaining big game migration routes and stopover areas as well as other important areas of wildlife movement. WGFD's directive is to maintain wildlife migration corridors through avoidance and mitigation measures. The Project Area contains WGFD-designated Mule Deer Crucial Range (winter/yearlong) and Elk Migration Routes (WGFD 2019d; Figure 8). WGFD is currently in the process of designating Ungulate Migration Corridors with the goal to attain no significant declines in species distribution or abundance or loss of habitat (WGFD 2019e). **Based on feedback provided by WGFD during initial agency outreach, the Project Area is located outside these proposed Ungulate Migration Corridors.**"

Habitat is present throughout the Project Area for elk (Cervus canadensis), mule deer (Odocoileus hemionus), and pronghorn, and they are commonly observed foraging. During the September 2019 field-based habitat assessment, one herd of approximately 50 elk was observed in the northeast corner of the Project Area (Figure 8; Photo 15, Appendix A). Aspen and montane forest habitat types present with the Project Area (Figure 7) provide suitable habitat for elk throughout the year, and shrubland habitats (Figure 7) provide suitable habitat for elk in the winter. One herd of approximately ten mule deer was observed in the southern portion of the Project Area (Figure 8). Aspen, montane forests, and shrubland habitats provide suitable mule deer habitat throughout the year. Pronghorn were observed in multiple locations throughout the Project Area, predominantly within the Wyoming Basins Dwarf Sagebrush Shrubland and Steppe (Figure 6)."

A quote from Section 5.4.2.3: The Project Area contains WGFD-designated Mule Deer Crucial Range (winter/yearlong) and Elk Migration Routes. WGFD is currently in the process of

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0061: Terry Opgenorth, continued

designating Ungulate Migration Corridors with the goal to attain no significant declines in species distribution or abundance or loss of habitat (WGF 2019e). Based on feedback provided by WGF during initial agency outreach, the Project Area is located outside these proposed Ungulate Migration Corridors.

A quote from The Rail Tie Wind Project DRAFT Environmental Impact Statement DOE/EIS-0543 March 2021, Section 3.4.4.3 states, "No big game species have mapped parturition areas in the analysis area. Big game species with mapped range in the analysis area (elk, mule deer, pronghorn, moose, and white-tailed deer) have associated HMUs designated by the WYGF that overlap the analysis area."

WGF is not up to date with elk herd activity and especially migratory patterns in the WAPA Rail Tie Wind Project area. There is a large herd that moves between the Roosevelt National Forest areas to the west of Cherokee Park Rd to areas east of 287, and includes adjacent areas directly south of the planned WAPA project adjacent to the CO/WY state line. I have personally seen the herd on numerous occasions traveling Cherokee Park Rd and 287, and dead elk along 287 apparently from vehicle collisions. I have observed the herd in the WAPA project area only in Winter-Spring months, which includes the calving season for elk. I have seen groups that number between 30-200 elk on different occasions, always south of the Terry Ranch Rd-North Park-230-kV transmission line, and usually north of the CO/WY state line though they do have a favorite feeding location just south of CO/WY state line adjacent to the planned Rail Tie Wind Project. See attached pictures that provide clear evidence of elk herd activity in the southern portion of the Rail Tie Wind Project, during critical Winter-Spring months, and spanning the last 6 years. I wish that I had taken pictures every time I've seen them in this area to bolster the case but I believe it is clear that that area represents an important migration and winter feeding/calving area for a significant elk herd.

Conclusion: The Technical Report and EIS conclusions are factually incorrect. A significant elk herd does use the southern portion of the Rail Tie Wind Project area as its winter range and parturition area in spring months, as evidenced by the pictures below (taken April 5, 2021; June 23, 2018, and January 2, 2015). Reevaluation of wildlife impact is required.

2. Visual Impact Assessment: KOP 4: Cherokee Park Road/Fish Creek Rd

This is direct quote from the report: "This viewpoint is located at the intersection of Fish Creek Road and Cherokee Park Road near the base of Boulder Ridge approximately 1.5 miles north of the Wyoming/Colorado border. The view orientation is east. This viewpoint represents rural residences along Elk Crossing Road in the Fish Creek Ranch Preserve, a private ranch consisting of approximately 4,200 acres on the slopes of Boulder Ridge, as well as through travelers and daily commuters along Cherokee Park Road."

A second direct quote from the report: "This viewpoint is located in an area with an indistinctive scenic quality rating, and the scenic quality of the landscapes seen from this viewpoint is considered indistinctive to common (Figure 5). Views from this location are dominated by gently rolling prairie grasslands in the foreground and middleground. A slight rise in the topography to the northeast of this viewpoint obscures views of the valley and mountains

0061-01

RESPONSE(S)

Western Area Power Administration

0061-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

COMMENT(S)

0061: Terry Opgenorth, continued

beyond. This terrain forms the visible horizon against a hazy light blue sky. Low rolling hills associated with the Laramie Mountains is visible in the background to the southeast. These hills are covered in dense dark green vegetation which creates a low dark linear band along the horizon. Variety in vegetation, color is limited to the short, pale yellow/sage colored grasses which creates a fine texture across the landscape. Human-made modifications are limited to a wire fence along the road and two high-voltage transmission lines that cross the open prairie landscape in the middleground. Due to the lack of variety in the key characteristics that compose this landscape, the scenic quality rating is considered indistinctive.

0061-02 This analysis does not do justice to the reality of the visual affect the wind turbine towers would have for the residences of Boulder Ridge or those traveling Cherokee Park Rd going south. A distinctive landmark to the south is Diamond Peak, which is not mentioned in the report (see picture below.) The peak is the major scenic feature on the southern horizon, and is clearly 'distinctive'. It is included on most maps, including satellite images of the region, because it is distinctive. While it might be argued that there would be no wind towers to the West of Cherokee Park Rd, and thus would not be directly obstructing the view of Diamond Peak from Cherokee Park Rd or Boulder Ridge, the wind turbine towers just to the East of Cherokee Park Rd positioned up to the CO/WY border would always be part of the view scape and thus would

0061-03 **dramatically** degrade the scenic identify of Diamond Peak. In addition, wind turbine towers would obstruct the sunrise and weather front views to the East for Boulder Ridge residents (see picture below). Calling their view 'indistinctive' does not do justice to daily viewing of climatic activity against the foreground of rolling prairie and background of the distant mountain ridge to the east. While I am not a Boulder Ridge landowner, I'm sure the Boulder Ridge residents see these views as a primary benefit of their location.

0061-04 No pictures of Diamond Peak or simulated views with wind turbine towers including Diamond Peak were provided in the visual assessment documents.

0061-04 **Conclusion: The Technical Report did not account for view impact of Diamond Peak, a distinctive landmark feature in the project area impact zone. Reevaluation of view impact taking Diamond Peak into account is required to provide a more accurate assessment that more completely evaluates the impact on Boulder Ridge residents, and other area landowners who travel Cherokee Park Rd.**

Recommendation to Address Issue 1 and 2 above:

0061-05 **Do not place any towers south of the Terry Ranch Rd-North Park-230-kV transmission line.** This is a compromise that maximizes the scenic view quality for most Boulder Ridge residents and property owners, and travelers of Cherokee Park Rd. In addition, it puts least pressure on the migratory range of a significant elk herd in Albany County that has scenic and hunting benefits for residents of both Wyoming and Colorado.

Based on the information provided by WAPA, this proposal would displace 18 6MW towers, many of which could be located in other parts of the plan area. If eliminated completely, their removal would decrease energy producing potential of the project by 21%.

RESPONSE(S)

Western Area Power Administration

0061-02 Sensitive viewer locations were evaluated and determined based on the types of users and groups most commonly encountered in the analysis area and are represented by either residences, recreation areas, or travelers. Through the public scoping and agency coordination process, KOPs were determined. Although Diamond Peak was not identified as a KOP for visual simulation, Diamond Peak was included within the 30-mile viewshed analysis area and KOP 4 (Cherokee Park Road and Fish Creek Road) provides a representative view of the Project analysis of potential impacts relative to views from the southwest. Impact characteristics for that area have been disclosed through the analysis process.

0061-03 Comment and preference noted.

0061-04 See response to comment 0061-02.

0061-05 As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0061: Terry Opgenorth, continued



Two Groups of Elk: Looking East from Cherokee Park Rd, adjacent to Fish Creek Ranch, Deerfield Rd entrance, April 5, 2021



North (left) Group Close Up View (57 animals)



South (right) Group Close Up View (52 animals)

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0061: Terry Opgenorth, continued



Group 1: Looking NE from Cherokee Park Rd -
January 2, 2015



Group 2: Looking East from Cherokee Park Rd -
January 2, 2015



Looking North from Cherokee Park Rd, < 1 mile south of the WAPA project
June 23, 2018

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0061: Terry Opgenorth, continued



View of Diamond Peak from Cherokee Park Rd at CO/WY Border



Weather Front on Eastern Horizon - View from Cherokee Park Rd/Fish Creek Ranch

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0061: Terry Opgenorth, continued



I took this picture Monday, May 24, which again shows a herd of a 100+ elk (probably just cows and calves this time of year), and further supports my thesis that the area adjacent to the CO-WY border is commonly used by this herd.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0062: Nancy Bath

From: Nancy Bath <nlbath@hotmail.com>
Sent: Sunday, May 16, 2021 5:37 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Wind project

0062-01

As a landowner involved with the ConnectGen Rail Tie Wind project, I support the project. It is a tremendous resource that will benefit ranchers involved in the project and the local and state governments. Yes, it will visually impact the area but the benefits outweigh the negatives. The nearby transmission line makes it a more viable project. I feel the area has been studied thoroughly and the county requirements have been met.
Thank you,
Nancy Bath

RESPONSE(S)

Western Area Power Administration

0062-01

Comment and preference noted.

COMMENT(S)

0063: Iliana Paul et al., Institute for Policy Integrity



May 17, 2021

To: U.S. Department of Energy, Western Area Power Administration
Subject: Consideration of Greenhouse Gas Emissions in Draft Environmental Impact Statement for the Rail Tie Wind Project (DOE/EIS-0543)

The Institute for Policy Integrity at New York University School of Law (“Policy Integrity”)¹ respectfully submits the following comments on the Western Area Power Administration’s (“WAPA” or the “Administration”) Draft Environmental Impact Statement for the Rail Tie Wind Project (“Draft EIS”).² Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity regularly submits comments to federal agencies on the consideration of climate change impacts under the National Environmental Policy Act (“NEPA”).

0063-01

In the Draft EIS, the Administration concludes that the proposed wind project would “[o]ffset approximately 900,000 metric tons of carbon dioxide emissions annually compared to typical U.S. electric generation.”³ As it finalizes the environmental review and assesses whether to approve the proposal, WAPA should consider providing context to those emission offsets by using the social cost of greenhouse gases—a tool developed by a federal Interagency Working Group that assesses the economic and human-health impacts from an incremental emission or offset of greenhouse gases. The social cost of greenhouse gases helps fulfill an agency’s obligation to assess climate impacts under NEPA and offers the best method for agencies to consider and weigh those impacts in permitting decisions.

As a federal appeals court has explained, the “impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires,” and thus agencies must “provide the necessary contextual information about the[se] cumulative and incremental environmental impacts.”⁴ To fulfill their obligation to take a “hard look” under NEPA, agencies should assess the impact of a project on climate change and resulting health and welfare impacts such as mortality or property damage. The U.S. Supreme Court has called

¹ This document does not purport to represent the views, if any, of New York University School of Law.
² Western Area Power Administration, Draft Environmental Impact Statement for the Rail Tie Wind Project, DOE/EIS-0543, (Mar. 2021).
³ *Id.* at ES-iii; *accord id.* at 1-3.
⁴ *Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172, 1217 (9th Cir. 2008); *see also id.* (“[T]he fact that climate change is largely a global phenomenon that includes actions that are outside of [the agency’s] control . . . does not release the agency from the duty of assessing the effects of its actions on global warming within the context of other actions that also affect global warming.”); *Border Power Plant Working Grp. v. U.S. Dep’t of Energy*, 260 F. Supp. 2d 997, 1028–29 (S.D. Cal. 2003) (failure to disclose project’s indirect carbon dioxide emissions violates NEPA).

RESPONSE(S)

Western Area Power Administration

0063-01

Per the Interagency Working Group’s Social Cost of Carbon technical support document, and conservatively assuming the Project’s 900,000-metric ton offset consisted entirely of CO₂, the average Social Cost of Carbon savings for emissions year 2025 at a 3 percent discount rate would be \$50.4 million per year. (See Table ES-1 in the February 2021 Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 available at <https://perma.cc/5B4Q-3T5Q>.)

COMMENT(S)

0063: Iliana Paul et al., Institute for Policy Institute Integrity, continued

impact disclosure the “key requirement of NEPA,” and held that agencies must “consider and disclose the *actual environmental effects*” of a proposed project in a way that “brings those effects to bear on [the agency’s] decisions.”⁵ The actual effects of greenhouse gas emissions (or emission offsets) are not those emissions themselves, but rather the incremental climate impacts caused by those emissions.⁶ For this reason, numerous federal courts have held that mere quantification of greenhouse gas emissions and comparisons to geographic inventories is insufficient because this fails to capture the project’s incremental climate effects.⁷

An available and widely-used tool—the social cost of greenhouse gases—allows for the assessment of incremental climate benefit or cost. The social cost of greenhouse gases calculates how the emission or offset of an additional unit of greenhouse gases affects atmospheric greenhouse concentrations, how that change in atmospheric concentrations affects temperature, and how that change in temperature incrementally contributes to the various impacts resulting from climate change.⁸ The social cost of greenhouse gases tool therefore captures the factors that actually affect public welfare and assesses the degree of impact to each factor, in ways that merely estimating the volume of emissions cannot. In fact, various agencies have used the social cost of greenhouse gases to assess a project’s climate impacts.⁹ Just last year, the Department of Energy issued final rules relying on the protocol, explaining that the social cost valuations capture “climate-change-related changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services.”¹⁰

⁵ *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 96 (1983).

⁶ For a more complete discussion of actual climate effects, including air-quality mortality, extreme temperature mortality, lost labor productivity, harmful algal blooms, spread of West Nile virus, damage to roads and other infrastructure, effects on urban drainage, damage to coastal property, electricity demand and supply effects, water supply and quality effects, inland flooding, lost winter recreation, effects on agriculture and fish, lost ecosystem services from coral reefs, and wildfires, see EPA, *Multi-Model Framework for Quantitative Sectoral Impacts Analysis: A Technical Report for the Fourth National Climate Assessment* (2017); U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment* (2017); EPA, *Climate Change in the United States: Benefits of Global Action* (2015); Union of Concerned Scientists, *Underwater: Rising Seas, Chronic Floods, and the Implications for U.S. Coastal Real Estate* (2018).

⁷ See, e.g., *Ctr. for Biological Diversity*, 538 F.3d at 1216–17 (rejecting analysis under NEPA when agency “quantifie[d] the expected amount of [carbon dioxide] emitted” but failed to “evaluate the incremental impact that these emissions will have on climate change or on the environment more generally,” noting that this approach impermissibly failed to “discuss the *actual* environmental effects resulting from those emissions” or “provide the necessary contextual information about the cumulative and incremental environmental impacts” that NEPA requires); *High Country Conservation Advocates v. U.S. Forest Serv.*, 52 F. Supp. 3d 1174, 1190 (D. Colo. 2014) (“Beyond quantifying the amount of emissions relative to state and national emissions and giving general discussion to the impacts of global climate change, [the agencies] did not discuss the impacts caused by these emissions.”); *Mont. Env’t. Info. Ctr. v. U.S. Office of Surface Mining*, 274 F. Supp. 3d 1074, 1096–99 (D. Mont. 2017) (rejecting the argument that the agency “reasonably considered the impact of greenhouse gas emissions by quantifying the emissions which would be released if the [coal] mine expansion is approved, and comparing that amount to the net emissions of the United States”).

⁸ Interagency Working Group on the Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis* 5 (2010).

⁹ See e.g., Bureau of Ocean Energy Mgmt., Final Environmental Impact Statement of Cook Inlet Planning Area Oil and Gas Lease Sale 244 (BOEM 2016-069) (Dec. 23, 2016); see also Peter Howard & Jason Schwartz, *Think Global: International Reciprocity as Justification for a Global Social Cost of Carbon*, 42 COLUM. J. ENVTL. L. 203, 270–84 (2017) (listing all uses by federal agencies through mid-2016, including numerous NEPA assessments).

¹⁰ Dep’t of Energy, Energy Conservation Program: Energy Conservation Standards for Uninterruptible Power Supplies, 85 Fed. Reg. 1477, 1477, 1480 (Jan. 10, 2020).

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0063: Iliana Paul et al., Institute for Policy Institute Integrity, continued

0063-02 Applying the social cost of greenhouse gases is straightforward and provides information that would be very useful to WAPA’s assessment. The most widely used social cost estimates were developed by the federal Interagency Working Group on the Social Cost of Greenhouse Gases (“Working Group”), a coordinated effort among twelve federal agencies and White House offices including the Department of Energy. The National Academies of Sciences has issued two reports that broadly supported the use of the Working Group’s estimates by federal agencies.¹¹ Distinguished economists have explained that the Working Group’s estimates are the best numbers available.¹² And the U.S. Court of Appeals for the Seventh Circuit has upheld the Department of Energy’s reliance on these estimates.¹³

The Working Group released estimates in 2010 and updated them in 2016 to “provide a consistent approach for agencies to quantify [climate change] damage in dollars.”¹⁴ This past February, the Working Group once again reaffirmed its previous numbers as reflecting “the best available science,” though the Working Group acknowledged that these valuations “likely underestimate societal damages from [greenhouse gas] emissions” and began a process to update these valuations by January 2022.¹⁵ And as the Working Group explained, agencies should apply the social cost metrics to any “relevant agency actions”—not just regulations.¹⁶ This advice echoed similar language in Executive Order 13,990, in which President Biden recognized that the social cost of greenhouse gases could be useful for a wide range of agency processes including “decision-making, budgeting, and procurement.”¹⁷ In that Executive Order, President Biden called on the Working Group to provide additional guidance by September 2021 on the decisions for which the executive branch should apply the social cost of greenhouse gases.¹⁸

0063-03 Accordingly, the Administration should consider applying the Working Group’s social cost of greenhouse gases valuations to assess the incremental climate benefits of this project.

Sincerely,

Iliana Paul, Senior Policy Analyst
 Max Sarinsky, Senior Attorney
 Jason A. Schwartz, Legal Director

¹¹ Nat’l Acads. Sci., Eng’g & Med., *Valuing Climate Damages: Updating Estimates of the Social Cost of Carbon Dioxide* (2017); Nat’l Acads. Sci., Eng’g & Med., *Assessment of Approaches to Updating the Social Cost of Carbon: Phase 1 Report on a Near-Term Update* (2016).

¹² See, e.g., Richard L. Revesz et al., *Best Cost Estimate of Greenhouse Gases*, 357 Science 655 (2017) (co-authored with economists Michael Greenstone, Michael Hanemann, Peter Howard, and Thomas Sterner).

¹³ *Zero Zone, Inc. v. U.S. Dep’t of Energy*, 832 F.3d 654, 678 (7th Cir. 2016).

¹⁴ *Fla. Se. Connection, LLC*, 162 FERC ¶ 61,233, at P 45 (Mar. 14, 2018).

¹⁵ Interagency Working Group on the Social Cost of Greenhouse Gases, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide – Interim Estimates under Executive Order 13,990 at 3–4 (2021).

¹⁶ *Id.* at 14.

¹⁷ Exec. Order No. 13,990 § 5(b), 86 Fed. Reg. 7037 (Jan. 25, 2021).

¹⁸ *Id.*

RESPONSE(S)

Western Area Power Administration

0063-02 See response to comment 0063-01.

0063-03 See response to comment 0063-01.

COMMENT(S)

0064: Miria White

May 17, 2021

Mark Wieringa
NEPA Document Manager
Western Area Power Administration, Headquarters
P.O. Box 281213
Lakewood, CO 80228-8213

RailTieWind@wapa.gov

My concerns for the Rail Tie Wind Project are centered around two major themes: this project's location is wrong because of the large number of residents negatively affected and the draft EIS relies too heavily on old data to support its conclusions.

0064-01

The fact that the draft EIS repeatedly uses information gathered by the Hermosa West Wind Energy Project as valid, after 9 years has lapsed, means that WAPA is not doing its due diligence to establish what the impacts will be now, not in 2012.

Since the Roundhouse Wind Project went online that is less than 20 miles away, about 1.5 years ago, the wildlife and ecological balance has been greatly disturbed. Residents that live within 10 miles of this project are reporting hundreds more rodents invading their homes. One can surmise that the reason is the lack of balance in the food chain with a number of raptors killed by the blades. These effects and others need to be determined for the proposed area since Roundhouse has commenced operation so that a more accurate assessment of the impacts is illustrated by the EIS. The use of old reports is incorporated into almost every area of the draft EIS. The reliance on old reports is unacceptable.

0064-02

I believe that WAPA did not thoroughly encourage ConnectGen to explore other site locations, perhaps near Pawnee Buttes National Grassland in northern Colorado where the same WAPA transmission line crosses. Most locations along northern Colorado's part of the WAPA line would have much greater compatibility by not forcing a wind project on over 300 residences. Other wind projects throughout Wyoming will affect very few residences, mostly averaging less than 20. Rail Tie Wind Project will negatively impact over 380 residential parcels.

I performed a study where I looked at a few wind projects of comparable size in Albany and Carbon counties. I counted the number of rural residential parcels within a 5-mile radius of these projects boundaries. For Rail Tie, I counted only the residential parcels in Wyoming and did not include approximately an additional 200 located within 5 miles but in Colorado. My data is displayed below:

RESPONSE(S)

Western Area Power Administration

0064-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. In addition, the majority of technical reports and data used for the EIS were prepared specifically for the Project; reports created for the Hermosa West Wind Farm Project were only used in limited cases where data were still applicable.

0064-02

As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to the agency's transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0064: Miria White, continued

Wind Project Name	County	# Turbines	Total Acres	Total # Parcels	# Rural Residential Parcels	% Rural Residential
Boswell Springs	Albany & Carbon	170	21,600	221	17	8%
Rail Tie	Albany	Up to 149	26,000	382	183	48%
Seven Mile Hill	Carbon	66	14,000	57	0	0%
Sierra Madre (Phase 1)	Carbon	250*	29,250	237	17	7%
Lucky Star	Albany & Carbon	200	79,817	332	6	2%
Dunlap I	Carbon	74	6,750	206	5	2%

Rural Residential is defined as a residential parcel outside of a township

Number of Parcels within 5-mile radius of project boundaries

* Estimate because Sierra Madre and Chokecherry are usually combined but using both does not make an accurate comparison

0064-03

Please give ConnectGen a no connection vote and send them back to find a different location where they need to do CURRENT studies for their EIS.

Sincerely,
 Miria White
 106 Corral Springs Rd
 Tie Siding, WY 82084

miriawhite@gmail.com

RESPONSE(S)

Western Area Power Administration

0064-03

Comment and preference noted.

COMMENT(S)

0065: Rin Kasckow, Alliance for Historic Wyoming



Protecting Wyoming's Historic Places and Spaces

Julia Stuble (Lander) Thom Tisthammer (Bellvue, CO) Kimberlie Rightmer (Casper)
 Andrea Graham (Laramie) Mary Humstone (Ft. Collins, CO) Austin Moon (Evanston)
 Lorre Hoffman (Lander) Joe Chenchar (Cheyenne) Mary Augustin (Cheyenne)

PO Box 123 | Laramie, WY 82073 | 307.333.3508 | ExecDirector@HistoricWyoming.org | www.HistoricWyoming.org

Tracey LeBeau, Interim Administrator and
 Chief Executive Officer
 Western Area Power Administration
 12155 W. Alameda Parkway
 Lakewood, Colorado 80228

May 17, 2021

RE: Comments on the Draft Environmental Impact Statement for Rail Tie Wind Project

Dear Ms. LeBeau,

Please accept these comments on the draft Environmental Impact Statement (EIS) for the Rail Tie Wind Project from the Alliance for Historic Wyoming (AHW). The Alliance is Wyoming's only statewide historic preservation nonprofit organization and is currently a consulting party on the Programmatic Agreement (PA) for the Rail Tie project. We represent several hundred members across the state.

0065-01

We are extremely concerned about the impact of the Rail Tie project on several historic and cultural resources and find the proposed mitigation to be inadequate. We recommend WAPA modify the agency's alternative to adopt a more clear mitigation hierarchy approach for historic and cultural resources, an approach that would more clearly tier avoidance, minimization, and remediate and offset for the impacts the project will have on historic resources.

Sites that require avoidance

0065-02

WAPA has discretion to adjust siting and the number of turbines in the project area and should do so in order to avoid impacts to the Ames Monument, Overland Trail, transcontinental railroad, and Lincoln Highway.

Ames Monument

0065-08

The most visible historic site affected by the proposed project is the Ames Monument, which is a designated National Historic Landmark. One of the criteria for such designation is "setting and/or feeling" and the project will put strong vertical elements on the horizon and view from the monument, which is extremely disruptive of the original setting. The importance of the monument is not just the structure itself, but its setting at the highest point on the original route of the Transcontinental Railroad, and the opportunity for visitors to see and appreciate the distinctive high plains landscape that challenged the railroad's builders and that remains largely open and undisturbed today. For local residents and visitors that landscape is what makes this place unique, part of the "feeling" of the National Historic Landmark and of the high plains and Rocky Mountain foothills.

0065-03

In the EIS, the agency notes that regardless of maximum or minimum turbine height scenarios, the visual impact for the Ames Monument would be "strong". This means that mitigation of the impact through altering turbine technology is impossible, which is why we believe that WAPA should ensure that turbines are not in the foreground or mid-ground view from the Ames Monument.

RESPONSE(S)

Western Area Power Administration

0065-01

Avoidance, minimization, and mitigation of impacts to cultural resources is specifically tiered in EIS section 3.6.5.3, "Proposed Action." EIS section 3.6.5.3 states that avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. Mitigation measures would consider and may include those that remediate or offset impacts the Project could have on historic properties.

0065-02

As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with its Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to the agency's transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project; therefore WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

0065-08

See page C-172 for response.

0065-03

See page C-173 for response.

COMMENT(S)

0065: Rin Kasckow, Alliance for Historic Wyoming, continued

RESPONSE(S)

Western Area Power Administration

0065-08

Mitigation of impacts that could occur from the Project to the Ames Monument NHL has not yet taken place. Mitigation would be addressed in a PA, as described in the EIS (see section 3.6.5.3, “Proposed Action”). As stated in the EIS (see section 3.6.5.2, “Methods of Analysis”), the PA would also address special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing the monument’s exceptional value in commemorating or illustrating the history of the United States. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project Description (see chapter 2, “Proposed Federal Action and Alternatives, and ConnectGen’s Project” and Appendix A, “Project Description”). Avoidance of impacts through the design and micro-siting of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. Impacts from blade movement or rotation and the vertical elements of turbines are further addressed in section 3.5.2.3, “Proposed Action”).

COMMENT(S)

0065: Rin Kasckow, Alliance for Historic Wyoming, continued

RESPONSE(S)

Western Area Power Administration

0065-03

EIS analysis of the Proposed Action does conclude that the visual impacts caused by the Project to the Ames Monument NHL would remain strong and result in an adverse effect (section 3.6.5.3, “Proposed Action,” table 3-21). Alternatives for turbine arrangement consider the use of fewer larger megawatt turbines (84 6.0-MW turbines, up to 656 feet in height) and, alternatively, a greater amount of smaller megawatt turbines (up to 149 3.0-MW turbines, 500 feet in height). Following direct avoidance of the Ames Monument NHL and minimization of visual impacts by setting turbines at no closer than 1.1 miles from the NHL and painting the turbines in non-reflective light colors would be ways of using the design and layout of the Project technological facilities to minimize effects (section 2.2.6, “Environmental Protection Measures,” table 2-6). Use of an ADLS would be another form of technology that would reduce the effects of nighttime turbine lighting, greatly minimizing the effect of visual impacts from turbines compared to use of a standard continuous or synchronized flashing, medium-intensity red strobe FAA warning system (see ES 6.1, “Aesthetics and Visual Resources”). As stated in EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project Description (see chapter 2). The PA also addresses special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States (EIS section 3.6.5.2). Avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. CR-5 (draft EIS section 2.2.6, table 2-6) would be incorporated into project design with regard to the Ames Monument NHL. For the Proposed action, siting corridors analyzed for turbine placement would provide a minimum 1.1-mile setback from the NHL.

COMMENT(S)

0065: Rin Kasckow, Alliance for Historic Wyoming, continued



Protecting Wyoming's Historic Places and Spaces

Julia Stuble (Lander) Thom Tisthammer (Bellvue, CO) Kimberlie Rightmer (Casper)
 Andrea Graham (Laramie) Mary Humstone (Ft. Collins, CO) Austin Moon (Evanston)
 Lorre Hoffman (Lander) Joe Chenchar (Cheyenne) Mary Augustin (Cheyenne)

PO Box 123 | Laramie, WY 82073 | 307.333.3508 | ExecDirector@HistoricWyoming.org | www.HistoricWyoming.org

0065-07

We disagree that the suggestions for mitigation of the physical and nonphysical impacts of the project on the Ames Monument will resolve all adverse effects. Documentation and interpretive signage are already in place, and further documentation, digital media productions, and hiking trails will do nothing to compensate for a horizon filled with tall spinning blades. When mitigation activities like these do not adequately limit the negative impacts on a resource, the agency must take a stricter approach, such as avoidance of that impact.

Overland Trail, Transcontinental Railroad, Lincoln Highway

0065-06

The routes of the Overland Trail, the original transcontinental railroad, and the Lincoln Highway all cross the northern portion of the proposed project site. These are nationally and internationally significant historic settlement and transportation routes of great interest and value to local communities, tourists and scholars, and the understanding of their original setting will be irrevocably damaged when they are surrounded by wind turbines. The routes themselves must certainly remain undisturbed by construction and access roads and by the turbine bases themselves. Actual impacts on the remaining physical aspects and routes of these resources must be avoided.

Sites for Minimization

Minimizing the impacts of turbines is necessary for several sites and their settings in order to adequately protect the historic and cultural values.

Viewsheds of the Overland Trail, Transcontinental Railroad, Lincoln Highway

0065-04

The settings for the Overland Trail, transcontinental railroad and Lincoln Highway contribute to the maintenance of their historic values, enjoyment by visitors, and understanding for historians. We recommend that the visual impacts from turbines be minimized within the viewsheds of these resources, either through siting, differential height of towers, topographical camouflage, or other means. We recommend that turbines not be visible within the foreground of these viewsheds.

Conclusion

0065-05

In order to lessen impacts to the sites and viewsheds of several key historic and cultural sites, the WAPA should improve the application of a mitigation hierarchy to include avoidance and viewshed minimization through turbine siting. Without these additional steps, the Rail Tie project will have irreversible negative impacts on several sites important to local communities, the understanding and enjoyment of a National Historic Landmark, and on the historic tourism economies of southeastern Wyoming.

Thank you,

Rin Kasckow
 Executive Director

RESPONSE(S)

Western Area Power Administration

0065-07

See response to comment 0065-08.

0065-06

The Overland Trail, the transcontinental railroad, and the Lincoln Highway are addressed in the EIS (see section 3.6.5.1 [table 3-20] and section 3.6.5.2 [table 3-21]) and discussed in the HPVIA for the Project, made available to the public at: <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>. Segments of those historic properties that contribute to the NRHP-eligibility of each transportation route might be located within the Project viewshed and APE. The EIS finds that strong visual impacts from the Project could occur at the Overland Trail and transcontinental railroad and that weak visual impacts might occur at the Lincoln Highway. The PA specifies planning and implementing avoidance, minimization, or mitigation of adverse effects from the Project to these historic properties. The EIS states that avoidance of impacts through the design and micrositing of Project infrastructure is prioritized (see section 3.6.5.3, "Proposed Action"). Per the EIS (see section 3.6.5.2, "Issue Statement #1"), EPMs/construction practices for protection of cultural resources related to avoidance of physical impacts include Project design or micrositing to relocate or reroute ground-disturbing infrastructure away from the resource (GEN-2). In cases where avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. In this manner, historic preservation measures would be applied for historic properties in the APE, including the Overland Trail, transcontinental railroad, and Lincoln Highway.

0065-04

Comment and preference noted.

0065-05

Comment and preference noted.

COMMENT(S)

0066: Gail K. Stakes

RAIL TIE WIND PROJECT – DRAFT EIS COMMENTS, GAIL STAKES, MAY 17, 2021

0066-07

First of all, the current Draft EIS appears to be a cut-and-paste from previous EIS documents prepared for earlier wind projects, even as far as stating that Laramie is the “capital” of Wyoming. The cited studies in this document appear to have been “cherry-picked” carefully to support the conclusion – with the exception of visual impacts – of no significant impacts on either environmental resources or devaluing of nearby private property. The authors use the term “as near as practicable” in several sections of this document when describing reclamation or restoration actions. This seems to be an **intentionally vague statement that could allow reclamation to be ignored or minimized.**

0066-06

It also appears that a good-faith effort **was not made to engage all stakeholders.** As an example, Colorado Parks and Wildlife and the Rocky Mtn. Elk Foundation were not even aware until other private citizens brought it to their attention just one week before the end of the

0066-01

Draft EIS comment period. **I strongly oppose the permitting and construction of the Rail Tie Wind Project described in this Draft EIS, and respectfully submit my comments below.**

0066-02

- There is inconsistency in the number of turbines that will be installed in the project. I understand that number depends, in part, on which turbine model is chosen, but the range of turbines expected varies among the various documents related to the project. I recently received a notice of permit application via certified mail that stated that “120 turbines” would be installed. All other documents report a range of turbine numbers, usually “up to 149”. This estimate should be consistent across ALL documents and is another example of **stakeholder misinformation.**

0066-03

- Related to the number of turbines used, it is troubling that the exact placement within the turbine corridors is currently unknown. The project plan allows ConnectGen to wait until project and permit approval are obtained to make those decisions. **I question the accuracy and honesty regarding impacts across all environmental areas if the analyses are not done on the true and real locations of the turbines.** Given this uncertainty, if ConnectGen does not adhere to the plan of construction or reclamation of damages incurred during construction, or adverse impacts to any and all resources, **Albany County nor the State of Wyoming have the ability to enforce or challenge potential departures from the vague “plan” that is currently in the EIS document.**

0066-04

- **There is no transportation plan or analysis in the draft EIS.** Highway 287 is mostly a 2-lane 70 MPH road in the project area described. There are far more deaths on 287 in the project construction period (spring, summer, and fall) due to the sheer number of tourists coming to Wyoming to see the great outdoors. I believe that **Highway 287 is not capable of supporting transportation of the turbines and rotors, and that a study of how to mobilize those units is critical before the draft EIS is approved.**

0066-05

- Not only will the turbines result in “significant impacts as compared to the characteristic landscape” in areas surrounding the project area, the improvements to existing roads and building of new roads will allow increased access and use by the public, which could result in vegetation trampling and possibly increased erosion

RESPONSE(S)

Western Area Power Administration

0066-07

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. The majority of technical reports and data used to prepare the EIS were prepared specifically for the Rail Tie Wind Project; reports prepared for the Hermosa West Wind Farm Project were only used in limited cases where data were still applicable. In section 3.12.4.1, “Population and Demographics,” text was revised to remove the statement that Laramie is the capital of Wyoming.

0066-06

WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, “Public Involvement and Scoping.”

0066-01

Comment and preference noted.

0066-02

The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2. WAPA’s NEPA process and EIS preparation is separate from the Albany County permitting process. WAPA has and will continue to consider if the Project meets county and state regulations. Conditions of county and state permits are listed in section 2.2.6, “Environmental Protection Measures.”

0066-03

Comment noted.

0066-04

See page C-176 for response.

0066-05

See page C-177 for response.

COMMENT(S)

0066: Gail K. Stakes, continued

RESPONSE(S)

Western Area Power Administration

0066-04

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (section 3.13.5.3, “Proposed Action”). As stated in section 3.13.5.3, prior to the start of construction, a Transportation and Traffic Management Plan would be developed and implemented in coordination with WYDOT and Albany County to manage turbine component deliveries, traffic, and circulation in and around the Project Area and minimize restrictions or closures to access (TRANS-1). Additionally, a Traffic Control Plan would be developed for the Project that would specify certain safety measures and locations, including signage to signal motorists of construction entrances and cones or concrete barriers for work near the shoulder of the road. Spotter/escort vehicles would be used for deliveries of larger tower components to ensure communication of intent to turn to local motorists and warn them to use caution near the oversized load.

COMMENT(S)

0066: Gail K. Stakes, continued

0066-05, continued
 in the project area. **This impact in mixed-grass prairie landscapes is not trivial.** The EIS concludes that no significant impacts to vegetation would occur during construction, operation, or decommissioning phases of the project. As a property owner only a couple of miles from the project boundary, **I can unequivocally state that even occasional pickup truck traffic across mixed-grass prairie and scrub/shrub landscapes result in tracks that persist for years.** I find it difficult to believe that “crane paths” and equipment haul roads will not result in far greater damage to the vegetation of the project area that will last far into the future.

The project will require 60 miles of new, all-weather permanent roads. Reclamation of roads is difficult in this environment, as is reclamation of all vegetation. **These roads will result in a permanent scar on this landscape.**

0066-08
 • In an already dry and dusty landscape, the **air quality will be significantly impacted** through dust from travel on the dozens of miles of unpaved roads during the two-year construction period.

• **GROUNDWATER ANALYSES SHORTCOMINGS IN THE DRAFT EIS.**

0066-09
 ○ **The EIS document makes contradictory statements regarding the impacts to aquifers and ground water.** On one page they clearly state that belowground activities such as turbine foundations could alter groundwater connectivity and either increase or decrease aquifer connectivity. Only a couple of pages later they state that belowground-disturbing activities would not impact groundwater accessibility or aquifer discharge or recharge. **These conclusions are contradictory and inconclusive.**

○ Turbine foundations vary with the type of turbine used, and without knowing turbine model selection and siting, “geotechnical” analyses related to deep, concrete foundations cannot be done prior to the preparation of this EIS document. **There is no assurance that these analyses will ever be done. Given that no groundwater analysis has been done, the statements that use words such as “unlikely” to have impacts are irresponsible and unacceptable.**

○ The authors further state that most ground water within the area is relatively shallow – 12-20 feet - yet the concrete piers that support the turbines will likely be 30-40 feet deep into the ground and admit that dewatering of groundwater may be required in many areas. This is very detrimental to the groundwater and associated aquifers in the project areas. In addition, new water wells will likely be drilled for both construction purposes (2 concrete batch plants) and operational phases (substations).

○ The sheer number (102) and linear feet (6653) of stream crossings that will occur during the life of the project is staggering, especially in an arid area where even ephemeral streams are very important to surface water and vegetation communities. **Again, I believe these impacts will far exceed the life of the project.**

• The Draft EIS states that “project plans” will be developed to “avoid or minimize adverse effects on environmental resources.” This is as vague as it can get. Most of these are slated to be developed **prior to construction.** Who specifically will write these plans?

RESPONSE(S)

Western Area Power Administration

0066-05
 Comment noted. The impacts to vegetation are discussed in section 3.14, “Vegetation.”

0066-08
 Please see the discussion in section 3.3.5.3, “Proposed Action, Issue Statement #1.” As mentioned, a Fugitive Dust Control Plan would be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f) (AQ-1). All unpaved roads and disturbed areas where construction activities would occur, including temporary laydown areas, would be treated with water or other surfactants as frequently as necessary to control fugitive dust. Wind erosion control techniques such as windbreaks, water, WYDEQ-approved chemical dust suppressants, and/or vegetation would be applied to soil disturbance areas that could potentially result in wind-blown soils to minimize fugitive dust.

0066-09
 The EIS is written to acknowledge that certain effects could occur, then to consider what EPMs ConnectGen has committed to, thus reducing those impacts. Additional language was provided in the final EIS to clarify Project dewatering activities and potential dewatering impacts (see section 3.15.5.3, “Issue Statement #2”). There is evidence that subaquifers in the Project Area are not linked and that ground-disturbing activities would not cause dewatering or connectivity between groundwater resources (WSGS 2021). Additionally, the WYSEO requires a construction dewatering permit (see section 3.15.1.2, “State Regulations”) and requires ConnectGen to apply EPMs (see section 2.2.6, “Environmental Protection Measures”) throughout the life of the Project to avoid impacts to groundwater resources. As summarized in section 3.15.5.3, “Issue Statement #2,” water extracted at turbine installation locations would be transported to upland areas within the same hydrologic catchment area, thereby keeping the water within the same catchment area that feeds to local waterbodies and wells, and would not impact groundwater availability. Impacts to streams are considered in section 3.15, “Wetland and Water Resources,” and impacts to vegetation are considered in section 3.14, “Vegetation.”

COMMENT(S)

0066: Gail K. Stakes, continued

What are their qualifications to write such a plan? If construction is to begin in 2022, shouldn't the plans be developed in 2021? Have they been developed?

- 0066-10 • The authors cite a study by Sullivan et al. as the source for the size of the analysis area for visual impact analyses. However, their study used turbines 300-400 feet in height; the current Rail Tie proposal is for turbines that are 400-675 feet in height. This makes me question the validity of the visual impact analyses and the results may be suspect, **if not completely inappropriate**. The conclusions that report a strong visual impact will occur within the project area and foreground area, but less so to areas further away, could be a very conservative estimate of the extent and severity of the turbines on the visual landscape.
 - 0066-11 ○ In addition to the visual impact of the turbines themselves, the flashing red lights will, according to the EIS document, "introduce a dense horizontal cluster of flashing lights into a rural landscape that is relatively dark at night and would, therefore, introduce strong degrees of visual change within the night sky environment." Like many of my neighbors, one reason for living in a rural area such as this is the beautiful, dark night skies. I will be long dead before decommissioning of the project and will lose the benefit of rural living and the clear night skies for the rest of my life.
 - 0066-12 ○ The EIS states that the project components (turbines and associated structures) within the ~26,000-ac project area, will directly impact the overall scenic quality of approximately **354,850 acres** of the area surrounding the project area – an area GREATLY disproportionate to the size of the actual project area, and would be substantially or severely altered. **Is this not sufficient to deny the permits and the project itself?**
- 0066-13 • The EIS seems to greatly minimize the potential impacts to bird and bat species that result from turbine blade collisions. No comparative numbers of mortality are provided and subjective language such as "minimal" or "negligible" are used when describing the potential for bird and bat mortality due to these inevitable collisions. TNC and the Audubon Society have addressed these issues in a letter available to the public, and it is their opinion and mine that because of the sheer number of turbines surrounding the Laramie basin in both Carbon and Laramie Counties already, **a landscape impact study should be performed to minimize largescale degradation of avian populations.**
- 0066-14 • The Draft EIS states that big game individuals would be impacted by Project construction and operations, but impacts would not be anticipated at the population or community levels. The authors have no basis upon which to make that statement whatsoever because no research has been done that supports those findings. Have hunters in Colorado and Wyoming been made aware of this potential disruption to their wildlife corridors? I am sure no public announcements were posted in hunting or wildlife magazines. **AGAIN, purposefully failing to inform stakeholders.**
- 0066-15 • The four studies and analyses cited as evidence that wind projects such as Rail Tie have not shown "statistical" evidence of lowering property values to residential or agricultural property surrounding or within a wind turbine project are quite old (2009-2013) and are certainly done on turbines that are much smaller and therefore

RESPONSE(S)

Western Area Power Administration

- 0066-10 The Sullivan et al. (2012) study was referenced to establish the 30-mile analysis area. The scale and dominance of wind turbines within the Project Area and the foreground area of the Project would have similar visual impacts regardless of size due to the introduction of Project component elements (form, line, color, texture) that are not common in the landscape. There would be a reduction of visual dominance the greater the distance the viewer is in relation to the Project due to the increased viewshed and influence of intervening landforms and human-made features that would influence the viewer's ability to discern Project components.
- 0066-11 Comment noted.
- 0066-12 Comment noted.
- 0066-13 The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Impacts to avian and bat species, including impacts from collisions with wind turbines, are considered in section 3.5, "Avian and Bat Species." Cumulative impacts from the Project and other projects (overlapping in both time and space) are considered in chapter 4, "Cumulative Impacts." Impacts to avian and bat resources are considered within the Project Area and no reasonably foreseeable future actions fall within this area.
- 0066-14 See page C-179 for response.

COMMENT(S)

0066: Gail K. Stakes, continued

RESPONSE(S)

Western Area Power Administration

0066-14

While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. The notice of intent to prepare an EIS and the notice of availability for the draft EIS were published in the Federal Register on December 30, 2019, and April 2, 2021, respectively. Project notification letters were sent to Project stakeholders and landowners within a 3-mile radius of the Project Area boundary, to inform them of the EIS scoping period, public scoping meetings, publication of the draft EIS, public comment period, and the public hearings. Additionally, advertisements about the Project and scoping meetings and public hearings were published in the *Fort Collins Coloradoan*, *Laramie Boomerang*, and *Wyoming Tribune Eagle* (Cheyenne) newspapers on several dates at least 2 weeks prior to both the public scoping meetings and public hearings after the publication of the draft EIS.

COMMENT(S)

0066: Gail K. Stakes, continued

0066-15,
continued

less noisy than the large turbines proposed by ConnectGen. Further, **one of the studies** reports impacts on home values based on simply an announcement of a proposed wind facility. **A second study** was based on 24 different wind facilities, with little information about landscape resources. **A third study** was based on a very small wind facility (only 12 turbines) and the **fourth study** pooled data from nine states, with some wind facilities as small as a single turbine. **None of these studies are appropriate comparisons to the Rail Tie project and I question the validity of these conclusions. In addition, most findings as listed below show significant decrease in property value from large windfarm installations.**

<https://www.sciencedirect.com/science/article/pii/S014098831600044X>

<https://rsaiconnect.onlinelibrary.wiley.com/doi/epdf/10.1111/pirs.12197>

<http://le.uwpress.org/content/94/4/496.short>

<https://www.sciencedirect.com/science/article/abs/pii/S0095069615000418>

In addition to these studies, in 2013 the Ontario Supreme Court found that Wind Farms indeed decrease property values between 22% and 55%. Please note that the 2013 ruling was *after* all of the studies that were cited in the social and economic impact report provided by ConnectGen. You can read more about the court decision here: <https://www.farms.com/ag-industry-news/ontario-court-says-wind-turbines-reduce-property-values-882.aspx>.

The most disturbing thing about this Draft EIS is that most if not all conclusions about project impacts are incorrect and unsubstantiated. That fact in concert with the blatant lack of stakeholder involvement makes this EIS invalid and an absolute Fraud.

Respectfully submitted, May 17, 2021

Gail K. Stakes
MS Electrical Engineering
18-year resident of Laramie, WY

RESPONSE(S)

Western Area Power Administration

0066-15

The studies listed were reviewed. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0067: Daniel B. Tinker, Ph.D.

RAIL TIE WIND PROJECT – DRAFT EIS COMMENTS, DAN TINKER, MAY 10, 2021

I am one of the 447 property owners within a 5-mile radius of the project area and, as such, the following comments may appear at first to be based on a “not-in-my-backyard, or NIMBY” response to the project. However, I assure you that my career as a terrestrial ecologist and my experience working our ranch to grow hay and graze livestock gives me a perspective beyond the obvious impacts to my neighborhood landscape. **I strongly oppose the permitting and construction of the Rail Tie Wind Project and respectfully submit my comments below.**

0067-01

1. I question whether WAPA participation in the preparation of the EIS is a conflict of interest. There are 29 members of SWCA that were contracted to write the EIS and who contributed to the document, but there are also five members of WAPA – two with PhD degrees – that were involved in the document preparation. What benefits does WAPA receive if the interconnection is approved and the project is built? I assume revenues would be paid to WAPA from ConnectGen, which would, in my opinion, constitute a conflict of interest in the preparation and approval of the EIS.

0067-02

2. There is inconsistency in the number of turbines that will be installed in the project. I understand that number depends, in part, on which turbine model is chosen, but the range of turbines expected varies among the various documents related to the project. I recently received a notice of permit application via certified mail that stated that “120 turbines” would be installed. All other documents report a range of turbine numbers, usually “up to 149”. This estimate should be consistent across ALL documents.

0067-03

3. Related to the number of turbines used, it is troubling that the exact placement within the turbine corridors is currently unknown. The project plan allows ConnectGen to wait until project and permit approval are obtained to make those decisions. **I question the accuracy and honesty regarding impacts across all environmental areas if the analyses are not done on the true and real locations of the turbines.**

0067-04

4. Not only will the turbines result in “significant impacts as compared to the characteristic landscape” in areas surrounding the project area, the improvements to existing roads and building of new roads will allow increased access and use by the public, which could result in vegetation trampling and possibly increased erosion in the project area. **This impact in mixed-grass prairie landscapes is not trivial.**

5. In an already dry and dusty landscape, the **air quality will be significantly impacted** through dust from travel on the dozens of miles of unpaved roads during the two-year construction period.

0067-05

6. The Draft EIS states that available habitat for big game species would be impacted through vegetation removal and noise from construction during the two-year construction period. This seems like quite a long time to displace individuals or herds that typically use this area.

7. The project acknowledges that streams and aquatic habitat can be severely degraded during the construction period. Again, 18-24 months of adverse conditions seems to be quite a long time for disturbance to aquatic habitats, and **I am highly sceptical about the likelihood of recovery following the construction of the project.**

RESPONSE(S)

Western Area Power Administration

0067-01

Comment and preference noted.

0067-02

As the third-party environmental contractor, SWCA was responsible for independently verifying and vetting information provided by the applicant, ConnectGen. As detailed in chapter 1, WAPA is the lead federal agency under NEPA regulations and is responsible for approving and accepting the contents of the EIS, a process that WAPA’s technical experts participated in. Consideration of the proposed Project falls within WAPA’s mission and purpose to facilitate the generation and transmission of electricity to market. WAPA is required to consider the interconnection request to comply with FERC open access to transmission regulations, as described in section 1.1, “Western Area Power Administration’s Purpose, Need, and Decision.”

0067-03

The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2.

0067-04

Comment noted. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0067-05

See page C-182 for response.

COMMENT(S)

0067: Daniel B. Tinker, Ph.D., continued

RESPONSE(S)

Western Area Power Administration

0067-05

While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation.

COMMENT(S)

0067: Daniel B. Tinker, Ph.D., continued

- 0067-06 8. **The groundwater analysis is incomplete in the Draft EIS.** The authors state that most ground water within the area is relatively shallow – 12-20 feet. They also state that the concrete piers that support the turbines will likely be 30-40 feet deep into the ground, and admit that dewatering of groundwater may be required in many areas. This seems very detrimental to the groundwater and associated aquifers in the project areas. In addition, new water wells will likely be drilled for both construction purposes (2 concrete batch plants) and operational phases (substations). **Given that no groundwater analysis has been done, the statements that use words such as “unlikely” to have impacts seems irresponsible and unacceptable.**
9. The EIS document claims that temporary increases in population during the construction phase (~1% of Laramie’s current population, or ~300 people) would not tax the existing housing or public services. While I agree that public services would not likely be impacted by this number of workers, the housing and rental market in Laramie is bleak, to say the least.
10. The project will require 60 miles of new, all-weather permanent roads. Reclamation of roads is difficult in this environment, as is reclamation of all vegetation. **These roads will result in a permanent scar on this landscape.**
11. The authors use the term "as near as practicable" in several sections of this document when describing reclamation or restoration actions. This seems to be an **intentionally vague statement that could allow reclamation to be ignored or minimized.**
- 0067-07 12. This comment is related to the postponement of major decisions regarding turbine model selection and siting. More specifically, the turbine foundations vary with the type of turbine used, and “geotechnical” analyses related to deep, concrete foundations have not been done. It seems to me that these types of analyses should have been done prior to the preparation of this EIS document. **There is no assurance that these analyses will be done, once permits are issued and the construction phase has begun.**
- 0067-08 13. The Draft EIS states that “project plans” will be developed to “avoid or minimize adverse effects on environmental resources.” Most of these are slated to be developed **prior to construction**. Who specifically will write these plans? What are their qualifications to write such a plan? If construction is to begin in 2022, shouldn’t the plans be developed in 2021? Have they been developed?
- 0067-09 14. The authors cite a study by Sullivan et al. as the source for the size of the analysis area for visual impact analyses. However, their study used turbines 300-400 feet in height; the current Rail Tie proposal is for turbines that are 400-675 feet in height. This makes me question the validity of the visual impact analyses and the results may be suspect, if not completely inappropriate. The conclusions that report a strong visual impact will occur within the project area and foreground area, but less so to areas further away, could be a very conservative estimate of the extent and severity of the turbines on the visual landscape.
15. In addition to the visual impact of the turbines themselves, the flashing red lights will, according to the EIS document, “introduce a dense horizontal cluster of flashing lights into a rural landscape that is relatively dark at night and would, therefore, introduce strong degrees of visual change within the night sky environment.” Like many of my neighbors, one reason for living in a rural area such as this is the beautiful, dark night

RESPONSE(S)

Western Area Power Administration

- 0067-06 The analysis of groundwater contained in section 3.15.5.3, “Proposed Action,” of the EIS was commensurate with the volumes of water needed and the limited time of the construction phase.
- 0067-07 The NEPA process began when ConnectGen was early in the engineering design for the Project and was conducted to consider impacts from the range of turbine models under consideration. The EIS reviews the potential effects of several turbine models with differing operating and physical characteristics, including differentiating numbers of turbines required, height, and other factors relevant to the specific resource under review. The design, physical characteristics, and potential effects of the turbines noted in this comment are within the range of the models and effects reported and analyzed within the EIS. The range of characteristics are described in table 2-2. Analyses were conducted and considered in the final EIS. Please see section 3.7, “Geology, Soil, and Mineral Resources.”
- 0067-08 These plans are currently being developed by ConnectGen in support of the various permits required by the regulatory authorities. Qualifications depend on the plans being developed. To the extent that they have been completed, these plans have been considered in the final EIS. See table 2-7 for a complete list of plans and their current status.
- 0067-09 The Sullivan et al. (2012) study was referenced to establish the 30-mile analysis area. The scale and dominance of wind turbines within the Project Area and the foreground area of the Project would have similar visual impacts regardless of size due to the introduction of Project component elements (form, line, color, texture) that are not common in the landscape. There would be a reduction of visual dominance the greater the distance the viewer is in relation to the Project due to the increased viewshed and influence of intervening landforms and human-made features that would influence the viewer’s ability to discern Project components.

COMMENT(S)

0067: Daniel B. Tinker, Ph.D., continued

skies. I will be long dead before decommissioning of the project and will lose the benefit of rural living and the clear night skies for the rest of my life.

16. While I'm discussing visual impacts, the EIS states that the project components (turbines and associated structures) within the ~26,000-ac project area, will directly impact the overall scenic quality of approximately **354,850 acres** of the area surrounding the project area – an area GREATLY disproportionate to the size of the actual project area, and would be substantially or severely altered. **Is this not sufficient to deny the permits and the project itself?**

0067-10

17. The EIS seems to greatly minimize the potential impacts to bird and bat species that result from turbine blade collisions. No comparative numbers of mortality are provided and subjective language such as “minimal” or “negligible” are used when describing the potential for bird and bat mortality due to these inevitable collisions.

0067-11

18. The four studies and analyses cited as evidence that wind projects such as Rail Tie have not shown “statistical” evidence of lowering property values to residential or agricultural property surrounding or within a wind turbine project are quite old (2009-2013) and are certainly done on turbines that are much smaller and therefore less noisy than the large turbines proposed by ConnectGen. Further, **one of the studies** reports impacts on home values based on simply an announcement of a proposed wind facility. **A second study** was based on 24 different wind facilities, with little information about landscape resources. **A third study** was based on a very small wind facility (only 12 turbines) and the **fourth study** pooled data from nine states, with some wind facilities as small as a single turbine. **None of these studies are appropriate comparisons to the Rail Tie project and I question the validity of these conclusions.**

19. The EIS concludes that no significant impacts to vegetation would occur during construction, operation, or decommissioning phases of the project. As a property owner only a couple of miles from the project boundary, **I can unequivocally state that even occasional pickup truck traffic across mixed-grass prairie and scrub/shrub landscapes result in tracks that persist for years.** I find it difficult to believe that “crane paths” and equipment haul roads will not result in far greater damage to the vegetation of the project area that will last far into the future.

20. The EIS document correctly states that aquifers in the project area are quite shallow and, as such, are highly sensitive to contaminants. Given the heavy vehicular and equipment use during construction, including many diesel-run vehicles, in concert with vegetation and stream damage from traffic, **I disagree with the conclusion that no damage to existing aquifers would occur.**

21. The sheer number (102) and linear feet (6653) of stream crossings that will occur during the life of the project is staggering, especially in an arid area where even ephemeral streams are very important to surface water and vegetation communities. **Again, I believe these impacts will far exceed the life of the project.**

0067-12

22. **The EIS document makes contradictory statements regarding the impacts to aquifers and ground water.** On one page they clearly state that belowground activities such as turbine foundations could alter groundwater connectivity and either increase or decrease aquifer connectivity. Only a couple of pages later they state that belowground-disturbing activities would not impact groundwater accessibility or aquifer discharge or recharge. These conclusions seem contradictory and I agree with the statements that **admit potential damage to aquifer structural integrity.**

RESPONSE(S)

Western Area Power Administration

0067-10

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

0067-11

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0067-12

In section 3.15.5.3, “Proposed Action,” the draft EIS explains that belowgrade-disturbing activities, such as disturbance for turbine foundations and newly drilled wells, could alter groundwater connectivity; however, these activities are not anticipated to increase groundwater connectivity because Wyoming groundwater data indicate that the aquifers do not overlap with the siting corridors where Project activities would take place. Belowgrade-disturbing activities will therefore be within single aquifer areas and will not modify connectivity.

COMMENT(S)

0067: Daniel B. Tinker, Ph.D., continued

Respectfully submitted, May 10, 2021

Daniel B. Tinker, PhD
Emeritus Associate Professor
Dept. of Botany and Program in Ecology
University of Wyoming
Laramie, WY

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0068: Vicki S. Henry

Rail Tie Wind Project Comments

Date: April 17, 2021

To: RailTieWind@wapa.gov
Attn: Mark Wieringa

From: Vicki S Henry
19 Towhee Trail, Tie Siding WY 82084

I have looked at the reports attached to the email regarding public comments for the Rail Tie Wind Project. And I received a postcard urging me to comment. Stephen E Henry and I own 35 acres with a cabin for residential purposes on Boulder Ridge Road in Wyoming. I am quite familiar with this area.

0068-01 Philosophically, I agree with using wind as an alternative power source. However, in the Rail Tie Wind project boundary, I believe the local wildlife will suffer from the roads and construction of this project. Raptors, songbirds and bats may also be killed by the turbines, once the turbines are established.

0068-02 I am most concerned with the elk and pronghorn population that use the area along the state line for calving and feeding grounds. When I drive on Cherokee Park Road, hundreds of elk can be seen migrating from Colorado into Wyoming and back along Fish Creek and south. In late spring and early summer, the elk calves are with the elk cows and are easily frightened by passing cars as they jump fences to pass from the Boulder Ridge forests into the Wyoming grasslands. In June, the male pronghorns leave the area and female pronghorns group together to bear their young. Again, the sanctity and peace of the grasslands would be destroyed by roads and construction in this area. Maintenance vehicles and construction equipment would threaten the pronghorn mothers and babies. Current residents are very careful to slow or stop while elk and pronghorn are crossing Cherokee Park Road.

0068-03 I was excited to read the report of raptor nests found in the area. This report explains why I see so many raptors when I drive in the area. The eagles and hawks are nesting and producing young! The turbines are known to kill raptors in flight. I have serious concerns about raptors being killed in flight or being unsafe in their nests.

At dusk at my cabin, I see the bats and hear the Common Nighthawks. Nighthawks nest on the ground and their population is in decline. Bats and nighthawks help by eating mosquitos and other flying insects in the area. I am unsure how the turbines would affect those populations, but reports show that bats have been killed by wind turbines.

Wildlife in this area have a very difficult time to survive the harsh winters which last many, many months. There are only a few short months of a more temperate climate in which to survive—hopefully thrive.

0068-04 I could promote this project if it were done within much smaller boundaries. As it stands, I must heartily oppose it.

RESPONSE(S)

Western Area Power Administration

0068-01 Comment noted. Concerns regarding bird and bat fatalities are addressed in section 3.5, “Avian and Bat Species.”

0068-02 Comment noted. Concerns regarding big game migration corridors are addressed in section 3.4, “Aquatic and Terrestrial Wildlife and Species-Status Species.”

0068-03 See response to comment 0068-01.

0068-04 Comment and preference noted.

COMMENT(S)

0069: Patricia Smith



To Whom It May Concern,

0069-01

I am writing in support of WAPA approving ConnectGen's request to interconnect its proposed Rail Tie Wind Project to the Ault-Craig 345-kV transmission in Albany County. As clearly described in the 357-page document there is not compelling support to denying the connection based on any findings in the EIS. As noted in the public hearing and EIS the only significant impact of the project is to the viewshed in that area, which impacts a few, not the majority. However, because wind turbines are already visible on 287 north of Laramie and on I-80 West of Laramie the viewshed impact is less of an issue. The viewshed impact is far outweighed by economic gains, adding long term jobs and much needed tax revenues for the county and schools. The EIS adequately covers the 14 areas of impact finding all acceptable except the viewshed. This is appropriate and the connection by WAPA should be approved.

Thank you,

Patricia Smith

Patricia Smith

3330 I80 Service Road

Cheyenne, WY 82009

3330 I80 Service Road Cheyenne, WY 82009
Phone: 307-637-8544 Fax: 307-635-8917

RESPONSE(S)

Western Area Power Administration

0069-01

Comment and preference noted.

COMMENT(S)

0070: Ruth and Steve Sommers

From: ruth@richardslake.org <ruth@richardslake.org>
Sent: Monday, May 17, 2021 12:27 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Cc: Ruth Sommers <somm8@icloud.com>
Subject: [EXTERNAL] Comments for draft EIS Rail Tie

Please consider the information presented below. And, could you let me know you are in receipt of this email? Thank you!
Ruth sommers

May 17, 2021

Mr. Wieringa
Western Area Power Administration
Headquarters Office A9402
Post Office Box 281213
Lakewood, Colorado 80228-8213

Mr. Wieringa:

WAPA's draft EIS for the Rail Tie project in southern Albany County, Wyoming inaccurately assumes big game species do not abandon habitats within or adjacent to wind energy facilities.

0070-01

This portion of the EIS should be reconsidered as the research cited in the technical report does not support this conclusion. The three studies referred to in the draft EIS technical report are irrelevant to this project, and one perhaps even to big game.

RESPONSE(S)

Western Area Power Administration

0070-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. The technical reports developed by Tetra Tech were independently verified by SWCA, WAPA's third-party contractor, as the draft EIS was written. While the technical reports were used to provide baseline information for the analysis in the draft EIS, some information about the Project has been updated since they were written. In some cases, reports written as part of the NEPA process for the Hermosa West Wind Farm Project will still be valid because those resources (soil type, geology, etc.) have not changed.

COMMENT(S)

0070: Ruth and Steve Sommers, continued

The first report cited in WAPA’s EIS’s Biological Resources Evaluation Technical Report, pg. 40 is one conducted at the Elkhorn Valley Wind Farm in Oregon. This study is not a study of big game use of a wind farm but is a post-construction avian and bat monitoring report; perhaps big game was incidentally noted during avian and bat surveys on the project, but this is not a study of big game use of a wind farm.

The second report cited is one done in Wyoming on pronghorn antelope at the Foot Creek Rim (FCR) facility near Arlington. As the name implies, turbines in that location are cited at the top of a rim which is cliff-like on one side with a steep incline on the other. The report specifically states the area *adjacent to and including FCR* received comparably little use by pronghorn throughout the year (pgs. 28, 29). The highest use observed was in the eastern portion of their much larger survey area, away from the turbines. The report also indicates the FCR did not historically have pronghorn winter concentrations, nor did FCR appear to be an important pronghorn parturition area. Therefore, it concluded, it did not appear that development of the wind plant on FCR would have significant impact on wintering or fawning pronghorn. It is unlikely they would be displaced from an area where they were not historically observed.

0070-02

The third study referenced in WAPA’s EIS is one done by Walter et al in 2006 on ten collared elk in a wind facility with 45 turbines on private land in southwest Oklahoma. This study is also cited in the Hermosa EIS in 2009 but used with this caveat: “...however both the vegetation and acreage of the proposed project site (Hermosa West) are significantly different than that described in the Oklahoma study so comparisons cannot be drawn.” (Shell Wind Energy. 2012. Hermosa West Wind Energy Project Draft EIS at 4.3.3.2.1, pg. 4.3-44). That cautionary statement is not reiterated in WAPA’s draft EIS for Rail Tie.

0070-03

The Biological Resources Evaluation ignored significant recent studies in nearby Carbon County, Wyoming demonstrating that pronghorn did avoid their traditional winter range after the Dunlap Ranch wind facility was developed. (Smith, Kurt T, Taylor, et al, 2019. Pronghorn Winter Resource Selection before and after Wind Energy Development in South-Central Wyoming. Rangeland Ecology & Management 72 (2020) pgs 227-33.) Their results “indicated that pronghorn avoided wind turbines within their winter home ranges during the operational phase after development.” This was observed for two winters following construction (2011 and 2012). They note further investigation is needed over longer periods of time, and indeed this study is ongoing, but warn that “managers should expect some loss of otherwise functional habitat when siting wind energy projects in pronghorn winter range.”

The draft EIS itself recognizes that habitat fragmentation is linked to reduction in population sizes and connectivity, and that fragmentation affects different species in different ways. It also recognizes that disturbance during construction is anticipated to limit the mobility of wildlife and disrupt life-cycle activities. On pg. 3-34, the Dunlap Ranch study of pronghorn avoidance of traditional winter range is mentioned, along with Sawyer’s extensive work on long-term mule deer

RESPONSE(S)

Western Area Power Administration

0070-02

We have retained Walter et al. (2004) in our analyses since it is the best available science. However, we added text for clarification on its comparability with the study area.

0070-03

As noted in the draft EIS, section 3.4.5.3, “Proposed Action,” research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game. In reference to the commenter’s suggested literature, Smith et al. (2020), this publication was included in the original publication of the draft EIS. Please see section 3.4.5.3, “Proposed Action.”

COMMENT(S)

0070: Ruth and Steve Sommers, continued

avoidance of oil and gas infrastructure. But the recognition of the findings in these studies is then dismissed, with a concluding sentence on page 34 that the Walter et al research used in TetraTech’s [Biological Resources Evaluation](#) found otherwise. The Walter et al study was likewise cited as evidence of elk use within wind energy facilities ten years ago in the Hermosa draft EIS but was described as *not being applicable to such different environment and circumstance as found in the proposed project area in southern Albany County.*

0070-04 **The conclusion drawn in WAPA’s draft EIS that there is solid evidence big game do not avoid wind project areas after development is not supported by the research cited, which is not germane to the project. Modern studies dispute this assumption.**

WAPA’s draft EIS **misrepresents the ease of reclaiming shrub and other vegetation in the high plains environment of the proposed project area**, one that is semi-arid with generally rocky, shallow soils. Well known to some rural residents in the area is the experience with the reclamation of the 72” Entegra pipeline completed in 2007, 14 years ago. That scar is still quite visible on the land, as (particularly) shrubs and species needed for mule deer browse have still not returned.

0070-05 There is no discussion of time needed to reestablish graminoids or shrubs other than sage; but an estimated 3 to 5 years to reestablish dwarf sage can be added to at least a year of construction, disturbing the traditional habitat of deer, elk and antelope across the project area for an anticipated 4 to 6 years. This is surely enough time to displace native resident wildlife. The 2012 draft EIS for Shell’s proposed Hermosa West project stated at 4.3.3.1 (pg. 4.3-40) that a significant effect on wildlife would occur if construction and operation of the proposed project interfered substantially with the movement of native resident or migratory wildlife species for more than two reproductive seasons. This seems like a probability.

0070-06 Other important information needed to understand the impact of Rail Tie is a **fuller understanding of the patterns of bird migration across the project.** The proposed project is near several areas considered critical to migratory birds, yet there is no study or discussion in WAPA’s draft EIS of potential migratory pathways. National wildlife refuges were created in the 1930s as places to be protected for migratory birds. Two of these refuges are near the project area, with Hutton Lake National Wildlife Refuge being only eight miles away and Mortenson only a couple miles further. Both NWRs are part of the Laramie Plains Wetland Complex, which includes these NWRs (and Bamford NWR) and extends further east. These wetland areas are unique to this semi-arid environment, and provide resting, migration, and breeding habitat for migratory birds. The area contains some of the most productive waterfowl breeding habitat in North America. It is identified by the Audubon Society as an Important Bird Area, recognized as being *globally important* for the conservation of bird populations. The [Laramie Plains Wetland Complex Regional Wetland Conservation Plan](#) lists twenty bird and six mammal Species of Greatest Conservation Need that use these wetlands; at a minimum, fifteen species use the area as breeding grounds.

0070-07 The proposed project area is located outside the two-mile buffer zone from wetlands suggested in the LPWC Plan, but no studies have been done on the migratory routes of birds using the area. Since that plan identifies the area to contain some of the most productive waterfowl breeding habitat in North America, one could imagine that migratory patterns of bird use of the wetlands would be an important component of study for a project proposed within eight miles of its boundary.

RESPONSE(S)

Western Area Power Administration

0070-04 As noted in the draft EIS, section 3.4.5.3, “Proposed Action,” research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. The draft EIS does not make an assertion that there is solid evidence that big game do not avoid wind facilities. Instead, the draft EIS mentions the limited nature of existing literature on big game avoidance of wind facilities and presents the existing and conflicting literature on the topic.

0070-05 As noted in the draft EIS, section 3.4.5.3, “Proposed Action,” research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game. Also see Issue Statement #2 for a discussion of reclamation of disturbed vegetation. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation.

0070-06 See page C-191 for response.

0070-07 See page C-191 for response.

COMMENT(S)

0070: Ruth and Steve Sommers, continued

RESPONSE(S)

Western Area Power Administration

0070-06

Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS's *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds.

0070-07

Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale, and no specific waterfowl migration pathways are known for the Project Area. The avian use data collected for the Project comply with guidelines in the FWS's *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds. Please see section 3.5, "Avian and Bat Species," for a summary of avian use studies conducted for the Project in 2019 and 2020. In addition, the Project would involve the development and implementation of a BBBS to avoid and reduce potential impacts that may result from Project operations.

COMMENT(S)

0070: Ruth and Steve Sommers, continued

0070-08

Additionally, in its January 29, 2020 letter to WAPA and the Wyoming Department of Environmental Quality, Wyoming Game & Fish suggested **some areas of the proposed project may be conducive to raptor migratory pathways. They likewise recommended analysis of this**, and that project infrastructure avoid areas used for raptor migrations. Of course, to know where these migratory pathways lie, a study of migration patterns for raptors is needed as well.

0070-09

WAPA should suggest the operator adopt modern technologies to reduce collision-caused bird mortality for the project. Another recent Wyoming study, (Christopher, J.W et al. 2021. Eagle fatalities are reduced by automated curtailment of wind turbines. Journal of Applied Technology, Vol 58 Issue 3, pages 446-452) tested the efficacy of an automated turbine curtailment system called Identi-Flight in the prevention and reduction of golden eagle mortality at Top of the World Wind Power Facility in Converse County, Wyoming. Eagle fatalities were substantially reduced – 82%. “The technology has the potential to lessen the conflict between wind energy and raptor conservation.” This technology should be a required EPM.

To meet the objective of making an informed and defensible decision based on disclosure of potential project impact, the following tasks need attention:

0070-10

- Reexamination of the claim in the EIS that big game do not abandon habitats within or adjacent to wind facilities, particularly considering the sources cited and/or omitted;
- Recognition that reclamation is a challenge in this Wyoming Basins Dwarf Sagebrush Shrubland and Steppe environment, and that the project has the potential to interfere substantially with the movement of native resident or migratory wildlife species for more than two reproductive seasons (2012 draft EIS for Hermosa West, 4.3.3.1, pg. 4.3-40);

0070-11

- Studies need to be undertaken to ascertain migratory pathways of the multiple avian species that might cross the project area, with corresponding environmental protection measures;

0070-12

- Adoption of modern technologies to automatically curtail turbines to substantially reduce turbine-caused avian collision fatalities.

Thank you for your consideration of this information.

Ruth and Steve Sommers
27 Beaver Trail
Tie Siding, WY 82084

Sent from [Mail](#) for Windows 10

RESPONSE(S)

Western Area Power Administration

0070-08

The WYGFD comment on record is provided as comment number 0076 in EIS Appendix C, “Public Comments and Associated Responses,” and does not mention raptor migration pathways. Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS’s *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds. Please see section 3.5, “Avian and Bat Species,” for a summary of avian use studies conducted for the Project in 2019 and 2020.

0070-09

See page C-193 for response.

0070-10

See page C-194 for response.

0070-11

See page C-194 for response.

0070-12

See response to comment 0070-09.

COMMENT(S)

0070: Ruth and Steve Sommers, continued

RESPONSE(S)

Western Area Power Administration

0070-09

Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.

COMMENT(S)

0070: Ruth and Steve Sommers, continued

RESPONSE(S)

Western Area Power Administration

0070-10

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. As noted in the draft EIS, section 3.4.5.3, “Proposed Action,” research on big game avoidance of wind turbines during operations is limited. Issue Statement #2 in this section has been updated to include an expanded discussion of displacement of big game.

0070-11

Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS’s *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds. Please see section 3.5, “Avian and Bat Species,” for a summary of avian use studies conducted for the Project in 2019 and 2020.

COMMENT(S)

0071: Virginia and Kreg VonLunen

Response to EIS for Rail Tie Wind Project
By Virginia and Kreg VonLunen

ES 6.2--Air Quality and Climate Change

As you stated--"construction WOULD impact air quality due to earth moving equipment and travel on paved and unpaved roads."

Most of the project area, as you are aware, is unpaved and with the "new" unpaved roads that will be constructed the air quality will be poor for 18 months. The bad air quality during construction will include, not only dust but the pollution caused by the big equipment. This will affect all who live in the surrounding areas, humans and animals alike and some of those humans having existing health issues will be made worse.

One solution will be to keep roads watered down, this will need to be done on a regular basis since the road will dry out fast with the wind. The wind is a huge factor blows 364 days a year, with wind speeds being clocked up to 100 mph. There is no guarantee that this is a concern nor proof of it being addressed.

Has Connectgen applied for the WDEQ permit? We need to know what the States "enforceable limits" will be so they can be addressed accurately.

ES 6.3--Aquatic and Terrestrial Wildlife and Special Status Species

You have stated the project would "slightly decrease available habitat for big game species" Considering the percentage of 2.4% of impact relative to available habitat, big game individuals could be impacted by project construction and operations, but impacts are not anticipated at population or community levels.

2.4% impact IS AN IMPACT. It will change established migratory patterns, feeding grounds, where babies are born, everything they are accustomed to, all during construction, operation and during the decommissioning of project. That is 25 years and then more change for the wildlife.

"Impacts from the noise and activities associated with construction and operations would cease when the activity was over and impacts associated with ground disturbance would end when the disturbance was reclaimed as part of the "Project Decommissioning" Again 25 years after everything is reestablished it will be uprooted and the wildlife has to begin again.

So you are saying the noise and operations are not just during construction it will continue until the "decommissioning" 25 years from now.

Changing of the migratory patterns, feeding grounds..etc will never be the same and all animals involved will have to "change how and where they live and travel."

"Increased vehicle and equipment traffic on new and existing access roads would increase the risk of vehicle collisions."

1

RESPONSE(S)

Western Area Power Administration

Please see the discussion in section 3.3.5.3, "Proposed Action, Issue Statement #1." As mentioned, a Fugitive Dust Control Plan would be prepared pursuant to Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f) (AQ-1). All unpaved roads and disturbed areas where construction activities would occur, including temporary laydown areas, would be treated with water or other surfactants as frequently as necessary to control fugitive dust. Wind erosion control techniques such as windbreaks, water, WYDEQ-approved chemical dust suppressants, and/or vegetation would be applied to soil disturbance areas that could potentially result in wind-blown soils to minimize fugitive dust.

See page C-196 for response.

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

RESPONSE(S)

Western Area Power Administration

0071-02

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federal or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, "Operations and Maintenance Activities." For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. As described in section 3.14.6, "Vegetation Conclusion," reclamation is expected to be successful in restoring native vegetation cover based on the 37 primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMs, detailed in section 2.2.6, "Environmental Protection Measures."

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

0071-09 You are saying there is a greater possibility that more babies or pregnant mothers will have a higher mortality rate because of the recklessness of drivers, for the company, visitors wanting to take a scenic route or semi's looking for alternate routes for 287 or interstate 80, during storms because they are closed, this happens a lot. These roads have never been maintained by the county in the winter. Will Connectgen maintain 70 something miles of county road? These roads are not meant for this kind of travel, even if modified to be better. They are dangerous and people like to play, it's fun, and accidents happen.

"Construction across or near stream channels or other water bodies that increases turbidity, sedimentation, or salinity and provide for potential spread of aquatic invasive species would degrade habitat. These effects would dissipate shortly after construction activities cease and sediment settles and are not anticipated to affect downstream aquatic species habitat or aquatic species populations or communities"

0071-10 Project area needs 200 acre-feet of water over the course of 18 months..all possible "invasive" species are disturbed and moved with rain and water runoff during construction and even after.

Water has always been able to find it's way to move from point A to B, C, D,....etc. because it is water and does not stop. It will make it way downstream, carrying whatever it catches "invasive or not" and even after construction ends. It will start all over in 25 years at the time of decommission.

0071-03 "Water also could be acquired by drilling temporary wells that are not hydrologically connected to the Platte River"

Great, but how will all the construction drilling and blasting affect the aquifer that supplies our water wells? Movement of this magnitude could move the rocks, shift the dirt and basically end our water supply. There is no guarantee that this will not happen that I can see.

This is one of the reasons that the town of Laramie will not allow construction in or around the towns aquifer.

ES 6.4--Avian and Bat Species

"Ground disturbing construction and operations activities WOULD impact avian and bat habitat through the removal of vegetation for nesting, foraging, and brood rearing for birds. Construction disturbance and operations infrastructure WOULD impact 1471.3 acres of habitat (5.6%) until those areas were reclaimed following construction and again during decommissioning."

0071-11 Again this project is going to impact 5.6% of the project area, not just during construction but again in 25 years during decommissioning. Reclaiming, reclaiming what, you will have destroyed their habitat and it takes years, if ever, for it to come back to what it currently is. Impact is impact give them time to rebuild and then destroy it again.

0071-04 There is no mention about the "Red Tail Hawks, which are protected or the Black Footed Ferret which is on the endangered species list, living in this area. Sounds like not enough of a study was done to cover all the animals that live here.

RESPONSE(S)

Western Area Power Administration

0071-09 Impacts to traffic, including U.S. 287 and county roads, are considered in section 3.13, "Transportation and Access." A Transportation and Traffic Management Plan has been drafted (as part of the ISC application) in coordination with WYDOT and Albany County and would be implemented to manage turbine component deliveries, traffic, and circulation in and around the Project Area and to minimize potential hazards from increased truck and worker traffic. Project-related travel during construction and operation would be restricted to routes identified in the Project Site Plan, which would allow appropriate traffic control measures to be implemented to minimize the risks of traffic accidents, particularly during transport of large Project components and equipment.

0071-10 Section 3.15.5.3, "Issue Statement #4," considers the effects of Project water use and notes that no new depletions would result from Project activities. Section 3.4.5.3, "Issue Statement #3," considers the effects of the Project on fisheries, including the potential for aquatic invasive species to spread, and concludes that although the use of construction equipment could create the potential for this to occur, measures described in section 2.2.6, "Environmental Protection Measures," would mitigate those effects.

0071-03 In section 3.15.5.3, "Proposed Action," the draft EIS explains that belowgrade-disturbing activities, such as disturbance for turbine foundations and newly drilled wells, could alter groundwater connectivity; however, these activities are not anticipated to increase groundwater connectivity because Wyoming groundwater data indicate that the aquifers do not overlap with the siting corridors where Project activities would take place. Belowgrade-disturbing activities will therefore be within single aquifer areas and will not modify connectivity.

0071-11 See page C-198 for response.

0071-04 See page C-199 for response.

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

RESPONSE(S)

Western Area Power Administration

0071-11

While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, “Operations and Maintenance Activities.” For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. As described in section 3.14.6, “Vegetation Conclusion,” reclamation is expected to be successful in restoring native vegetation cover based on the 37 primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMS, detailed in section 2.2.6, “Environmental Protection Measures.”

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

0071-04, continued Example, We have planted trees around our house, 20 years ago, they have grown, maybe 3 feet in height because of climate here and not a great deal of nutrients in the soil. Most of the trees that were here when we moved here are 100 years old and are only 10 feet tall. My point is the land does not recover quickly or well.

"The risk of bird and bat mortality from turbine blade collision would be slightly increased for the Siemens Gamesa 6.0 MW turbine because they would have more total windswept area compared to the Vesta 5.6 MW turbines and GE 3.0 MW turbines The relationship between turbine height and bird and bat mortality risk is unclear for the range of turbines being considered"

0071-12 Since the decision has not been made regarding "which " turbines will be used, there is no way you can say for sure what will happen to birds or bats mortality risk. These turbines could make these species "extinct."

There is also no research being shown on any of the turbines that are being considered so with no decision that can be shared how can you know what the outcome of this would be.

"Project construction and O & M WOULD disturb roost sites and hibernacula for bats if present in the siting corridors in rocky outcrops (.48%) or forested habitat (.82%) however bats COULD avoid these areas during construction (18 months) and O & M activities and return when construction activities cease and reclamation was completed during decommissioning. Based on the analysis of these issues, impacts are expected to individual birds and bats, but populations are not expected to be effected, and the impacts would not be significant."

"Migratory Bird Treaty Act"

0071-13 In November of 213 Duke Energy Renewables Inc plead guilty to violating federal Migratory Bird Treaty Act. Between 2009 - 2013. It was discovered that 14 golden eagles (we have here) and 149 other protected birds including hawks, blackbirds, larks, wrens, sparrows were found dead by the companies wind projects in Converse County, WY. The two wind projects are comprised of 176 LARGE wind turbines sited on PRIVATE agricultural land.

Please do not tell us that "impacts would not be significant" The above totals was over 4 years by the time it was addressed. How many could be killed over the life span of this "project".

ES 6.11--Social and Economic Resources

"The project could contribute to changes in residential property values for nearby homes, however, studies of the effects of wind facilities on residential property values have shown that residential property values could increase or decrease, and are not statistically related to the announcement or presence of wind facilities, and are influenced by multiple other factors."

In researching the references used for the housing values, the first thing that I noticed is that they are all written by the same group of individuals, using the same basic information between 2009-2013. Between 2008 -2012 this country was in a housing market collapse, which effects the results of these "studies."

RESPONSE(S)

Western Area Power Administration

0071-04 Comment noted.

0071-12 Mortality to avian and bat species associated with collision is considered in section 3.5.5.3, "Proposed Action." Before the start of construction, a BBCS would be developed and would outline measures to avoid and minimize avian and bat mortality from direct strikes. Population-level effects are not anticipated.

0071-13 Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. ConnectGen has committed to obtaining an EITP from the FWS so that operation of the Project would comply with the BGEPA. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures.

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

The reference materials basically say the same thing. Ex.

"Dec 2009 Impact of wind power projects on residential property values in the US: A multi-site hedonic Analysis"

In the Abstract, it states the "present research" collected data on almost 7500 sales of single family homes situated within "10 miles" of 24 existing wind facilities in 9 states. (Washington, Oregon, Texas, Oklahoma, Iowa, Illinois, Wisconsin, Pennsylvania and New York. Please note that nothing in Wyoming has been addressed. On this fact alone you cannot say that the value of our homes will go up or down.

In the Conclusion and Further research needs:

I quote "Therefore, based on the data sample and analysis presented here, no evidence is found that home prices surrounding wind facilities are consistently, measurably and significantly affected by either view of wind facilities or the distance of the home to the facilities."

It also states and I quote "This work builds on existing literature (how old is that literature) in a number of respects, but there remain a number of areas for "further research". The primary goal of subsequent research should be to concentrate on those homes located closest to wind facilities, where the data sample herein was the "most limited." Additional research of the nature reported in this paper could be pursued, but with a greater number of transactions, especially for homes particularly close to wind facilities. A more detailed analysis of sales volume impacts may also be fruitful as would assessment of the potential impact of wind facilities on the length of time homes are on the market in advance of an eventual sale.

Finally it would be useful to conduct a survey of those homeowners living close to existing wind facilities and especially those residents who have bought and sold homes in proximity to wind facilities after facility construction to assess their opinions on the impacts of wind project development on their home purchase and sales decision."

One of the other references used "The effects of Proximity and View sales prices" Journal of Real Estate basically says the same thing "more research needed.

In an article, National Wind Watch, April 4, 2018, the following are quotes.

"Michael McCann of McCann Appraisal LLC out of Chicago said that "residential property values are adversely and measurably impacted by close proximity of "Industrial scale" wind energy turbine projects to residential properties" if they are up to 3.2KM (1.9 miles)away they decrease a property's value by 35 to 40 percent."

According to the London School of Economics, wind farm's decrease property values by up to 12% if the home is within 2km radius and can even affect property's value up to 14KM (8.6 miles) away.

Ontario Superior Court ruled in 2013 that land owners living near large wind farms suffer from lower property values. The court said it decreased property values by 22 to 55 percent.

Clearly wind turbines can affect property values. WE ARE WORRIED. As someone who has property for sale, we had an offer, they low balled the offer for they were afraid that the value would decrease so

0071-05

0071-08

4

RESPONSE(S)

Western Area Power Administration

0071-05

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0071: Virginia and Kreg VonLunen, continued

0071-08, continued much they would be upside down in the value of the property. Ultimately they backed out. We have lost a potential buyer due to the wind farm project. So it does affect us before it is even built. Are these energy companies going to compensate us for loss of value?

This section needs more research and study prior saying you don't know if it will be impacted.

ES 6.15--Wild land Fire

"Should a fire occur in the Project Area, local fire department would respond"

This statement should be looked at on a larger scale with the "distance" from the "local fire departments" and the terrain in the project area.

We are considered a "high plains desert" and with the "high wind factor" it makes this area a high risk for fires to spread quickly.

0071-06 Since this project is considered an Industrial Complex it should be discussed about having an "ON SITE" fire mitigation team, that could respond quickly. They should have all the appropriate firefighting equipment, due to the height of the towers, and the trained personnel to handle anything that may arise. This on site unit should be the around the clock. The other thing to think about, for all fires, is where is the water supply going to come from. The wells you are digging "are temporary" so this means fire departments will have to carry enough water to put out the fire where ever it is. What happens if they run out of water and the fire is not out....it will spread like crazy with the wind and then we end up with fires like last year. We cannot put that much responsibility on local PAID fire fighter or our Volunteer fire departments, who have access to minimal equipment. What about fire mitigation from the air? If there was a bad fire would this be a viable option?

On a final note, nothing is mentioned in this EIS except the word "decommissioning".

How will the decommission happen?

At what age will the turbines be taken down?

Where will all the parts go? There are over 8000 parts to one turbine.

0071-07 What about all the concrete they use, where will it go?

The landfills in WY already have a great many of these parts and nothing is being done with them, what makes this wind farm company any different.

These will affect the ENVIRONMENT. Are you not suppose to be addressing all of the ENVIRONMENTAL issues surrounding the Project?

Who will cover the cost of decommissioning and reclamation before and after?

RESPONSE(S)

Western Area Power Administration

0071-08 See response to comment 0071-05.

0071-06 See response to comment 0071-05.

0071-07 Technology and construction/decommissioning techniques available at the time of decommissioning are expected to have changed from their current state. At the time of decommissioning, ConnectGen would comply with all requirements for materials disposal and recycling available.

COMMENT(S)

0072: Hank Henry

May 15, 2021

Re: Rail Tie Wind Project – Public Comments

Dear Mark Wieringa, Rail Tie Wind Project:

I support wind energy projects that are correctly planned and carried out. I am a professional Wildlife Biologist Technician with the US Forest Service (USFS). During my course of service I have participated in three different projects researching elk behavior in response to human activities. Some of the published research results include: *The effects of firewood gathering on elk*; *The effects of seismographic exploration on elk*; and *The effects of traffic and multiple uses by humans on elk*.

I have lived south of Boulder Ridge for 27 years. I drive to Laramie about three days per week on the Cherokee Park Road, on the west side of your proposed project. The following comments are directed to the southwest corner of the Rail Tie Wind Project about four miles long and four miles wide.

The area of concern is definitely critical elk winter range. The herd sizes encountered vary from 10 to 600+ animals. With binoculars I have personally counted groups of 500+ every year. This population ranges eastward to US Hwy 287 and into Colorado.

In summary, USFS research found that elk prefer a buffer of at least one mile from human activities, and in grassland habitats this radius of avoidance is at least two miles. My main concerns for the elk herd are listed below.

1. The edge of timber on the south end of the project is a critical elk calving area from early May until later June. Natality and recruitment is essential to maintaining a healthy population. The RTWP would devastate calving.
2. Winter range is critical for survival of grazing herds. Winter poses the biggest constraints on herd survival. Since 85% of elk food consumption is grasses, then healthy grasslands throughout this area is of great importance. The elk range from two to three miles north of the timber/state line.
3. Construction of any turbines within two miles north of the timber/state line is not acceptable.

I trust your wildlife surveys were rigorous and conducted during winter and revealed the presence of elk.

In summary, there should be NO turbines in the area south of a line running from Boulder Ridge Road eastward to US Hwy 287 and southward to the state line of Colorado.

Thank you,

Hank Henry
19 Towhee Trail
Tie Siding WY 82084

0072-01

RESPONSE(S)

Western Area Power Administration

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federal or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Additionally, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deter big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, “Cooperating Agencies,” for a complete discussion of cooperating agencies.

0072-01

COMMENT(S)

0073: Connie Wilbert, Sierra Club Wyoming Chapter



May 17, 2021

Mark Wieringa
NEPA Document Manager
Western Area Power Administration
Headquarters Office, A9402
P.O. Box 281213
Lakewood CO 80228

Re: Draft Environmental Impact Statement for interconnection request from ConnectGen for Rail Tie Wind Project
Comments submitted by email to: RailTieWind@wapa.gov

Dear Mr. Wieringa,

On behalf of more than 6,000 members and supporters of Sierra Club Wyoming Chapter and more than 3.8 million members and supporters of Sierra Club nationwide, we appreciate the opportunity to submit the following comments on the draft Environmental Impact Statement prepared by the Western Area Power Authority (WAPA) for a request by ConnectGen Albany County LLC to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in southern Albany County, Wyoming.

Since 1892, the Sierra Club has worked to help people enjoy, explore and protect the planet. We support the responsible development of renewable energy, and recognize the need to carefully evaluate impacts of such development so we make wise decisions about where to site such development. Our members and supporters appreciate Wyoming's remarkable abundance and diversity of wildlife, and maintaining high quality habitats required by wildlife on both public and private land is very important to our constituency. At the same time, we fully understand the imminent threat posed by rampant carbon and methane pollution leading to potentially catastrophic climate change, and the urgent need to stop burning fossil fuels and transition to renewable energy as quickly as possible. Responsible renewable energy development must be grounded in honest evaluation of the balance between impacts and benefits.

We recognize that the proposed project is sited on private and state land, and that various other types of development already exist across the project area, including rural residential development, numerous roads, fences, water developments, a railroad, power lines, and a federal highway, with another federal interstate highway nearby.

We know that commercial wind development will affect the landscape. After reviewing the DEIS, we understand that the most significant impacts of this project will lie in a

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0073: Connie Wilbert, Sierra Club Wyoming Chapter, continued

0073-01

changed visual appearance of the landscape. We have concluded, based on the information presented in the DEIS, that the economic and societal benefits of developing the Rail Tie project outweigh the relatively limited impacts from the project. We therefore support WAPA's granting of ConnectGen's request for interconnection to the WAPA transmission lines.

Specific points we considered in coming to our conclusion include:

- The project is located on private and state land, and will confer significant economic benefits for Albany County and the State of Wyoming. The project will generate lease revenue for local ranchers, tax revenue for local governments and the state, and lease revenue to support public education from state land leases. It will create hundreds of temporary jobs during construction and at least 20 permanent jobs during operation. It will have no direct negative impacts on public land uses or access.
- Potential impacts to wildlife are real but limited. Wind development on otherwise undeveloped ranchland has been shown to be less permanently disruptive and harmful to wildlife and other resources than rural subdivisions, and lease revenue to landowners increases the likelihood that ranches will remain in ranching operations and decreases the likelihood that they will be subdivided for additional rural home development.
- The project will utilize WAPA's existing high voltage transmission lines that cross the project area, causing less environmental impact than a similar scale of development that would require construction of new transmission lines.
- The project lies in an area that is already well developed, with a major highway, Union Pacific railroad, numerous rural subdivisions, access and through roads, multiple limestone surface mines, and many local power lines, causing less environmental impact than a similar scale of development in a more remote, less developed area.

0073-02

Robust monitoring and adaptive management that is responsive to monitoring results can reduce impacts, and we expect to continue to encourage ConnectGen to commit to such adaptive management.

We appreciate the opportunity to submit these comments on the DEIS. Please continue to keep us informed on this process.

Sincerely,

Connie Wilbert
Director
Sierra Club Wyoming Chapter
connie.wilbert@sierraclub.org
307-460-8046

RESPONSE(S)

Western Area Power Administration

0073-01

Comment and preference noted.

0073-02

Comment noted.

COMMENT(S)

0074: J. Mark Stewart, Davis and Cannon, LLP, on behalf of Monaghan Farms, Inc.

DAVIS & CANNON, LLP

ATTORNEYS AT LAW

KIM D. CANNON
JOHN C. MCKINLEY
CLINT A. LANGER
J. MARK STEWART, P.E.
AMANDA F. ESCH*
COOTE D. HENDERSON*
DARCI A.V. PHILLIPS*

BENJAMIN J. ROWLAND
ANDREW R. WULF
CATHERINE M. YOUNG
COLE L. GUSTAFSON
GRANT ROGERS

OF COUNSEL
RICHARD N. DAVIS, JR.*
CHARLES R. HART
HAYDEN F. HEAPHY, JR.
JENA R. AKIN*

* ALSO ADMITTED IN COLORADO

422 W. 26th STREET
P.O. BOX 43
CHEYENNE, WYOMING
82003

TELEPHONE (307) 634-3210
FAX (307) 778-7118

www.davisandcannon.com

46 SOUTH MAIN
P.O. BOX 728
SHERIDAN, WYOMING 82801
TELEPHONE (307) 672-7491
FAX (307) 672-8955

210 SOUTH WARREN AVENUE
GILLETTE, WYOMING 82716
TELEPHONE (307) 682-1246
FAX (307) 672-8555

May 17, 2021
VIA EMAIL: RailTieWind@wapa.gov

Western Area Power Administration
c/o Mark Wieringa
Headquarters Office A9402
P.O. Box 281213
Lakewood, CO 80228-8213

RE: Rail Tie Wind Project Draft EIS – Comments of Monaghan Farms, Inc.

Dear Mr. Wieringa:

I represent Monaghan Farms, Inc., and write to provide comments on the Draft EIS (DEIS) prepared by Western Area Power Administration (WAPA) for the Rail Tie Wind Project contemplated to be constructed in southern Albany County, Wyoming. Monaghan Farms owns lands on the north and west borders of the proposed Connect-Gen project area and its comments concern two inadequacies in the DEIS. The first is the failure to consider and discuss the anticipated effects on future land use on adjacent lands. Second, the DEIS fails to adequately address potential impacts to surface and groundwater resources.

The discussion of shadow flicker in the DEIS is limited to existing sensitive receptors in the project area. Shadow flicker, however, is not limited to the project area and affects adjacent land, including Monaghan Farms' property in Sections 20, 21 and 29, Township 13 North, Range 73 West. While there are no existing sensitive receptors currently on Monaghan Farms' lands, the Shadow Flicker Technical Report upon which WAPA relied in its DEIS indicates that Monaghan's bordering lands in Section 21 and especially in Section 29 are subject to significant shadow flicker (TetraTech, Shadow Flicker Technical Report, Figure 2). This impact is likely to curtail or adversely impact Monaghan Farms' ability to develop the lands in the future, and may completely curtail its ability to develop these lands for residential use. An analysis of this significant impact should be undertaken, especially since Monaghan Farms is a non-participating,

0074-01

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0074: J. Mark Stewart, Davis and Cannon, LLP, on behalf of Monaghan Farms, Inc.

0074-01, continued
 but impacted landowner. The same should apply to other non-participating lands that border the project area. An informed decision by WAPA cannot be made without adequate consideration of this socio-economic impact on future property development.

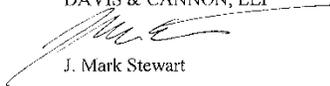
0074-02
 Secondly, the Surface Water and Groundwater Technical Report upon which the DEIS relies provides an inadequate basis for determining the likely impacts of the project on surface and groundwater resources that occur on the project lands and bordering properties. The Surface Water and Groundwater Technical Report states that a “water supply and yield analysis has not been conducted” and offers, without any supporting calculation or resource, that the water consumption of the project construction will not exceed 200 acre-feet (TetraTech, Surface and Groundwater Technical Report, p. 2-7; DEIS, Figure 2-1.). Certainly with the advanced planning the project has undergone, including delineating the likely location of over 60 miles of new roads, an accurate estimation of water use can be made. Monaghan Farms holds water rights in the streams below the project area for irrigation and stock use. Water is the life-blood of Monaghan Farms’ and its ranching and farming neighbors’ activities and the environmental impact of a project located in the source area of these surface and groundwater resources should be thoroughly analyzed with reliable and technically accurate and defensible estimations of water use impacts from the project.

0074-03
 Also, the surface water resources in the area, particularly Willow Creek, are in great part dependent upon natural springs inside the project area footprint. The DEIS fails to recognize or evaluate the interconnection between groundwater and surface water resources in the project area and potential effects on properties downstream. The DEIS indicates that blasting may be required for installation of tower foundations. Whether any such activities are planned to occur near natural springs needs to be analyzed and if so, whether such activities pose any threat to the continued reliability of these springs.

0074-04
 Likewise, the DEIS indicates that foundation de-watering activities may occur as well. There is, however, no discussion in the DEIS as to the volume of groundwater that may need to be diverted and whether these activities pose a threat to the continued viability of the natural springs that supply water for ranching and farming and as well as critical aquatic and wetland habitats located in the project area and on off-site properties.

0074-05
 Thank you for the opportunity to comment on the DEIS and Monaghan Farms looks forward to WAPA addressing these concerns.

Sincerely
 DAVIS & CANNON, LLP



J. Mark Stewart

cc: client

RESPONSE(S)

Western Area Power Administration

0074-01
 Comment noted.

0074-02
 Additional language was provided in the final EIS to clarify Project dewatering activities and potential dewatering impacts (see section 3.15.5.3, “Issue Statement #2”). There is evidence that subaquifers in the Project Area are not linked and that ground-disturbing activities would not cause dewatering or connectivity between groundwater resources (WSGS 2021). Additionally, the WYSEO requires a construction dewatering permit (see section 3.15.1.2, “State Regulations”) and requires ConnectGen to apply EPMS (see section 2.2.6, “Environmental Protection Measures”) throughout the life of the Project to avoid impacts to groundwater resources. As summarized in section 3.15.5.3, “Issue Statement #2,” water extracted at turbine installation locations would be transported to upland areas within the same hydrologic catchment area, thereby keeping the water within the same catchment area that feeds to local waterbodies and wells, and would not impact groundwater availability. Impacts to surface water are also considered in section 3.15, “Wetland and Water Resources.”

0074-03
 Water used for construction and operation of this Project would be subject to Wyoming water law and WYSEO rules and regulations, which include considerations for new uses of water and/or temporary or permanent changes of existing water rights under certain conditions.

0074-04
 The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. There are five springs within the Project Area, one is located within the siting corridors. Generally, ConnectGen is siting and designing the Project to avoid or minimize adverse effects on water resources, and has committed to marking them in the field to facilitate avoidance where possible. Table 2-6 details the measures ConnectGen will take to protect water bodies and aquatic resources during the life of the Project.

0074-05
 See response to comment 0074-04

0074-06
 Groundwater may be used to supply the required water volumes for construction, if adequate sources were located, as noted in section 2.2.3.12 of the EIS. Tower excavations may each also require dewatering for a short period during construction. Please refer to section 3.15.1.2, “State Regulations,” which provides reference to requirements for a construction dewatering permit.

COMMENT(S)

0075: Myron and Barbara Smith

Mark Wieringa, Western Area Power Administration

We are writing with regard to the Rail Tie Wind Project & the draft of the EIS.

0075-01

We urge WAPA to choose the No Action Alternative and WAPA not approve the interconnection request from ConnectGen.

We live one fourth mile from Ames Monument. We purchased the land over 21 years ago. At the time our electrical service was installed in September 2002 we were required to run underground electrical service. This was to not hinder views caused by power lines. The main impact shown in the for the ConnectGen project EIS is **visual resources**. So to allow ConnectGen to connect with WAPA with 84 to 149 wind turbines that are 500' to 675' high is ridiculous. Table 2-8, page 2-33—Aesthetics and Visual Resources—Here is a portion of the wording from this portion of the project impact. “The degrees of visual change for maximum turbine height would be **moderate to strong** from **76 percent** of identified KOPs as compared to **54 percent** associated with the minimum turbine height. The **landscape would appear substantially to severely altered**; Project components would introduce form, line, color, texture, or scale uncommon in the landscape and would be visually prominent to dominant in the landscape; Project components would attract or demand attention; and Project component would begin to dominate or dominate the visual setting.”

Please note that the **Aesthetics and Visual Resources visual change would be from 54-76 percent!**

It continues to indicate that the night flashing lights would be less than the standard FAA warning system. We can see the red flashing lights at night from our bed from the Round House project. Here is additional information from page 3-12—“These lights would simultaneously flash 20 to 40 times per minute (Tetra Tech 2020a). FAA lights associated with the Project would **introduce a dense horizontal cluster of flashing lights** into a **rural landscape** that is relatively dark at night and would, therefore, introduce **strong degrees of visual change** (see table 3-2) within the night sky environment. “

So here is what it says on page 3-7, table 3-2 about a strong impact—“Landscape would appear to be **severely altered**. Project components would introduce form, line, color, texture, or scale not common in the landscape and would be **visually dominant** in the landscape (strong contrast). Project components would demand attention. Project components would dominate in the visual setting.”

So it is says that the **Aesthetics & Visual Resources WILL be strongly impacted ALL day long!** Additionally, it shows on page 3-11, table 3-4 that **Ames Monument and Cherokee Park Road and Fish Creek Road will have a STRONG degree of visual change for tourists and recreational users!** Definitely seems to be a problem to create a problem with the visual resources of a National Historic Landmark such as Ames Monument. In 3.11.4.3---there are 90 campgrounds within the analysis area! Please note Figure 3-15 shows the recreation areas. It is notable the large area of recreation areas especially in the western two-thirds of the analysis area!

RESPONSE(S)

Western Area Power Administration

0075-01

Comment and preference noted.

COMMENT(S)

0075: Myron and Barbara Smith, continued

Page 3-12, table 3-5 shows STRONG degrees of visual change for three KOP's for **residents**. These are Tie Siding, Ames Monument and Cherokee Park Road and Fish Creek Road and moderate visual change for the Buttes. Please note it also says that maximum turbine height would have moderate degree of visual change for Laramie/City Ranch Road and would "DOMINATE the visual setting along the horizon."

At the top of page 2-8 is this statement—"To the extent possible, upon completion of construction activities, revegetation and reclamation would be conducted within disturbed areas to return the site to near preconstruction conditions. This effort would include activities such as conservation and reapplication of topsoil, seeding areas of bare soil, applying weed control measures, and returning land contours and drainage to preconstruction conditions." This is also addressed on page 2-27 under VEG-2.

0075-02 We find this hard to believe. The climate is harsh. How do they intend to get and keep the vegetation growing? Are they really going to be watering ALL of the areas that need revegetation all summer long and for more than one summer? As an example, we have a trail that cut across our land. We have not used it in over 20 years and it still has not regenerated foliage.

2.2.4.2—Maintenance Activities—" Road maintenance would be performed on an as-needed basis. Regular snow removal would occur during the winter months to maintain access to the wind turbines, substations, and O&M building." There could be times during the year when portions of the Project site could not easily be accessed because of high winds, or heavy rain or snowstorms. A Health, Safety, Security, and Environment (HSSE) Plan would be developed for the Project to guide the staff's activities during these weather conditions." It would seem that they would have difficulty driving to this large number of turbines since even the interstate is closed to regular traffic a very large number of times during fall, winter and spring months.

Page 3-133, 3.12.6----

The Project would not be expected to materially decrease the property values for nearby homes; relevant studies of the effects of wind facilities on residential property values have shown small increases and decreases that are not statistically significant related to the announcement or presence of wind facilities, and that any predicted or observed changes are influenced by other multiple factors.

0075-03 We take exception to the fact that it would not significantly reduce the property value for nearby homes. This is stating generic information. The RailTie Wind project is located in an area that has a hostile environment(frequent wind, hail, ice.....). You show in the EIS that the Visual Viewshed would be the most impacted. Well, that is why people love the area. If you take away the visual viewshed----we have no reason to endure the hostile environment and no one else will either!

RESPONSE(S)

Western Area Power Administration

0075-02 ConnectGen has completed a reclamation plan for the Project in support of the Albany County and ISC permit applications. This plan is in compliance with ISC and WYDEQ regulations and the Albany County Zoning Resolution.

0075-03 Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0075: Myron and Barbara Smith, continued

On page E-iii--we see listed ConnecGen's goals. Interesting to note that the top three which I've pasted below are all about ConnectGen and and connecting inexpensively and NOT about it being the best location for wind turbines.

"(1) Develop, construct, and operate a commercial wind energy generation facility capable of generating up to 504 MW of wind energy.

(2) Interconnect to WAPA's transmission system via a direct interconnection to the Ault-Craig 345-kV transmission line.

(3) Locate the Project in close proximity to an existing transmission line in order to reduce impacts and costs associated with building new transmission."

So, in conclusion, we urge WAPA to choose the No Action Alternative and WAPA not approve the interconnection request from ConnectGen.

Sincerely,

Myron & Barbara Smith

128 Monument Road

Buford WY 82052

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0076: Amanda Losch, Wyoming Game and Fish Department



WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006
Phone: (307) 777-4600 Fax: (307) 777-4699
wgfd.wyo.gov

GOVERNOR
MARK GORDON
DIRECTOR
BRIAN R. NESVIK
COMMISSIONERS
PETER J. DUBE – President
GAY LYNN BYRD – Vice President
RALPH BROKAW
MARK JOLOVICH
RICHARD LADWIG
ASHLEE LUNDEVALL
KENNETH D. ROBERTS

May 17, 2021

WER 14216.07
Western Area Power Administration
Rail Tie Wind Project
Draft Environmental Impact Statement
Albany County

Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
P.O. Box 281213
Lakewood, CO 80228
RailTieWind@wapa.gov

Dear Mr. Wieringa,

The staff of the Wyoming Game and Fish Department (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for the Rail Tie Wind Project located in Albany County. We offer the following comments for your consideration.

ConnectGEN has worked with the Department throughout the development phase of the proposed Rail Tie Wind Project to establish wildlife survey protocols, environmental protection measures, and wildlife monitoring plans. Through our coordination with ConnectGEN, all of these instruments have been created in an adaptive format. This approach will allow for tailored wildlife mitigation measures, which are based on data collected from the project site and that use the best available science and technology to mitigate terrestrial wildlife and aquatic impacts associated with project activities and operation. We recommend the final EIS (FEIS) acknowledge that adaptive management techniques will be utilized to reduce quantified impacts to terrestrial wildlife and aquatic resources.

0076-01

We also recommend that the FEIS discuss mitigation measures specific to bat mortalities associated with turbine operation. Several species of bats are predicted to be regionally impacted as a result of wind farm operation across the country. We recommend management action be taken to reduce bat mortalities, including incorporating minimization measures into project operations and design. Increasing turbine cut-in speeds and feathering turbine blades are two techniques that have been shown to decrease bat mortality at wind farms (Kunz 2004, Arnett et al. 2013, Hayes et al. 2019, Arnett and May 2016). Implementing such techniques during migration periods could reduce bat mortalities if they are determined to be significant as a result of operation of this project.

0076-02

0076-03

"Conserving Wildlife - Serving People"

RESPONSE(S)

Western Area Power Administration

0076-01 Comment and preference noted.

0076-02 ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures.

0076-03 See response to comment 0076-02.

COMMENT(S)

0076: Amanda Losch, Wyoming Game and Fish Department, continued

Mark Wieringa
May 17, 2021
Page 2 of 2 – WER 14216.07

Thank you for the opportunity to comment. If you have any questions or concerns please contact Matt Fry, Habitat Protection Biologist, at 307-777-4510.

Sincerely,



Amanda Losch
Habitat Protection Supervisor

AL/mf/ct

cc: U.S. Fish and Wildlife Service
Zack Walker, Wyoming Game and Fish Department
Embere Hall, Wyoming Game and Fish Department
Lee Knox, Wyoming Game and Fish Department
Chris Wichmann, Wyoming Department of Agriculture
David Gertsch, Albany County Planning Office

Literature Cited

- Arnett, E. B., G. D. Johnson, W. P. Erickson, and C. D. Hein. 2013. A synthesis of operational mitigation studies to reduce bat fatalities at wind energy facilities in North America. Report to The National Renewable Energy Laboratory, Golden, CO.
- Arnett, E.B., R. F. May. 2016. Mitigating wind energy impacts on wildlife: approaches for multiple taxa. *Human-Wildlife Interactions* 10:28-41.
- Hayes, M. A., L. A. Hooton, K. L. Gilland, C. Grandgent, R. L. Smith, S. R. Lindsay, J. D. Collins, S. M. Schumacher, P. A. Rabie, J. C. Gruver, and J. Goodrich-Mahoney. 2019. A smart curtailment approach for reducing bat fatalities and curtailment time at wind energy facilities. *Ecological Applications*, 29(4), p.e01881.
- Kunz T. H. 2004. Wind power: bats and wind turbines. In: Schwartz SS, ed. Proceedings of the wind energy and birds/bats workshop: understanding and resolving bird and bat impacts; 2004 May 18-19; Washington, DC. Washington: RESOLVE, Inc. p 50-6.

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0077: Andrea Barbknecht and Joy Bannon, Wyoming Wildlife Federation, continued



P.O. Box 1312
Lander, WY 82520
Phone: 307.335.8633 or Fax:
307.335.8690
www.wyomingwildlife.org

May 17, 2021

Western Area Power Administration
12155 W. Alameda Parkway
Lakewood, Colorado 80228
720-962-7077
RailTieWind@wapa.gov

WAPA Personnel and Recommending Official,

Thank you for providing the draft environmental impact statement (EIS) for the Rail Tie Wind Project. Wyoming Wildlife Federation appreciates the opportunity to comment on this proposed project and appreciates WAPA's due diligence in adherence to the letter and the spirit of the law in this review process.

WWF concurs that there will be impacts to big game use of habitat and potentially significant impact to avian and bat species. We also appreciate that the recreation community, including hunters and outdoorspeople, are accounted for in the visual impacts statement. The overarching goal of the project in providing affordable energy while reducing greenhouse gas emissions is one that WWF supports, but, as with traditional energy development, we feel that this good must be balanced with potential impacts to a legacy of intact ecosystems and recreation opportunities. To this end, we request that the following analyses and mitigation measures be included in the final EIS and Record of Decision document:

0077-01

1) The impacts of the project in terms of habitat fragmentation are mentioned, but much recent research, eg Sawyer, Lambert, and Merkle, 2020, has indicated mule deer in particular have strong avoidance reactions to highly fragmented systems. The overall impact of the proposed project on fragmentation and impacts to big game and nongame species should be analyzed in more depth.

0077-02

2) As a corollary to the above, while there are mitigation measures to ensure that vehicles drive on roads, there are no mitigation measures with regards to minimizing road and transmission infrastructure construction. We ask that an additional mitigation item be included under wildlife measures dictating that construction planning minimize the footprint of the project with special attention to minimizing the construction of new roads and transmission lines associated with the project.

We believe that the analyses for potential impacts to avian and bat species are adequate and that possible mitigations have been laid out, although given the scope of this project, careful

RESPONSE(S)

Western Area Power Administration

0077-01

The Sawyer et al. (2020) publication refers to mule deer avoidance of disturbed habitats during migration. We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federally designated or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. Therefore, potential impacts to big game migration corridors are not analyzed in the EIS because that resource is not known to be present in or near the Project Area.

0077-02

Comment and preference noted.

COMMENT(S)

0077: Andrea Barbknecht and Joy Bannon, Wyoming Wildlife Federation, continued

implementation and monitoring would be necessary to ensure impacts to these species are minimized. WWF recognizes that tradeoffs between local and national/global concerns are inherent in this project. This balance can only be successfully struck through careful planning and monitoring. Thank you for your time and attention.

If you have questions or would like to discuss our comments in greater detail, please contact us.

Sincerely,

Andrea Barbknecht abarbknecht@wyomingwildlife.org Education Director Wyoming Wildlife Federation	Joy Bannon joybannon@wyomingwildlife.org Policy Director Wyoming Wildlife Federation
--	--

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0079: Gary Blackwelder*

From: Gary Blackwelder (homedoorgary@yahoo.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Tuesday, April 27, 2021 10:16 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

The proposed Wind Farm developed by ConnectGen to build a 500 megawatt wind farm on private and state land south of Laramie is an IDAEL location and the transmission lines are ALREADY in place. This seems like AN IDEAL PROJECT -- it'll impact VERY FEW PEOPLE, MUCH of the infrastructure is already in place, therefore , causing Very Little impact or construction inconveniences to neighbors OR the public.

ConnectGen has signed long term leases to use privately owned ranch land and state lands in the project area, and WAPA has just released a Draft Environmental Impact Statement (DEIS) to analyze potential impacts of the project.

0079-01

THIS is one of the best scenarios we've had come our way in YEARS!!! THIS PROJECT SHOULD BE APPROVED!!!!

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Gary Blackwelder
61 Red Canyon Rd
Lander, WY 82520
homedoorgary@yahoo.com
(307) 349-9332

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0079-01

Comment and preference noted.

COMMENT(S)

0080: Andrew Salter

From: ANDREW SALTER (andy@andrewsalteradr.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Tuesday, April 27, 2021 10:17 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0080-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

ANDREW SALTER
P.O. Box 3414
Jackson, WY 83001
andy@andrewsalteradr.com
(206) 612-4039

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0080-01

Comment and preference noted.

COMMENT(S)

0081: Sandra Materi

From: Sandra Materi (materi44@bresnan.net) Sent You a Personal Message <automail@knowwho.com>
Sent: Tuesday, April 27, 2021 7:48 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0081-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Sandra Materi
1600 W Odell Ave
Casper, WY 82604
materi44@bresnan.net
(307) 235-3375

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0081-01

Comment and preference noted.

COMMENT(S)

0082: Kim Taylor

From: Kim Taylor (kimelisetaaylor@gmail.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, April 26, 2021 8:04 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

Wyoming needs to transition away from fossil fuel, especially coal. This wind power project will provide good jobs to those who lose work during such a transition.

0082-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Kim Taylor
304 Big Goose Rd.
Sheridan, WY 82801
kimelisetaaylor@gmail.com
(402) 310-6149

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0082-01

Comment and preference noted.

COMMENT(S)

0083: Mark Heineken

From: Mark Heineken (m.heineken@bresnan.net) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, April 26, 2021 8:40 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0083-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Mark Heineken
4310 Balsam Ln.
Jackson, WY 83001
m.heineken@bresnan.net
(307) 413-0784

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0083-01

Comment and preference noted.

COMMENT(S)

0084: Lawrence Boram

From: Lawrence Boram (oboram@gmail.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, April 26, 2021 9:16 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

The Rail Tie Project is excellent and needed!!!

0084-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Lawrence Boram
410 S Cedar St
Laramie, WY 82072
oboram@gmail.com
(307) 760-7832

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0084-01

Comment and preference noted.

COMMENT(S)

0085: Scott McGee

From: Scott McGee (scottmcgee@wyom.net) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, April 26, 2021 10:14 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0085-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped rangeland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Scott McGee
405 Aspen Dr #4, POB 468
Jackson, WY 83001
scottmcgee@wyom.net
(307) 413-6552

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0085-01

Comment and preference noted.

COMMENT(S)

0086: Matt Nagy

From: Matt Nagy (mattnagy@mac.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Tuesday, April 27, 2021 7:26 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

I'm a lifelong Wyomingite. Wyoming is the perfect place for wind power generation. Viewing windmills is much better than breathing polluted air. This is an opportunity for tax revenue and jobs. Let's get it done.

0086-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped rangeland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Matt Nagy
1309 E Kearney St
Laramie, WY 82070
mattnagy@mac.com
(307) 760-1259

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0086-01

Comment and preference noted.

COMMENT(S)

0087: Lisa Smith

From: Lisa Smith (llauritzen@bresnan.net) Sent You a Personal Message <automail@knowwho.com>
Sent: Sunday, May 2, 2021 11:54 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

This project makes sense for long term protection of air quality. Laramie has experienced the wildfire smoke related to global warming. Let's reduce carbon emissions to be part of the solution.

0087-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Lisa Smith
PO Box 7216
Jackson, WY 83002
llauritzen@bresnan.net
(307) 413-3590

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0087-01

Comment and preference noted.

COMMENT(S)

0088: Eric Quade

From: Eric Quade (eric.quade@mailfence.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, May 3, 2021 2:31 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0088-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Eric Quade
1051 Bonita Dr.
Laramie, WY 82072
eric.quade@mailfence.com
(307) 575-3402

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0088-01

Comment and preference noted.

COMMENT(S)

0089: Mike Selmer

From: Mike Selmer (mpsfamily@gmail.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Wednesday, May 5, 2021 3:30 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

I've used the recreation areas of Vedauwoo and Curt Gowdy and this project will NOT have an impact on my usage at all. I drive along I-80 frequently and consider the wind turbines along the way a beautiful testament to our desire to protect our children's future.

0089-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Mike Selmer
1462 Indian Hills Dr
Laramie, WY 82072
mpsfamily@gmail.com
(307) 703-0024

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0089-01

Comment and preference noted.

COMMENT(S)

0090: Mark Heineken

From: [Wieringa, Mark](#)
To: [David Fetter](#); [Krista Perry](#); [John Kuba](#); [Amanda MacDonald](#)
Subject: FW: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project
Date: Monday, May 10, 2021 4:00:05 PM

EXTERNAL: This email originated from outside SWCA. Please use caution when replying.

-----Original Message-----

From: Mark Heineken (m.heineken@bresnan.net) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, May 10, 2021 3:47 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0090-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped rangeland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Mark Heineken
4310 Balsam Ln.
Jackson, WY 83001
m.heineken@bresnan.net
(307) 413-0784

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0090-01

Comment and preference noted.

COMMENT(S)

0091: Bruno Novel

From: Bruno Novel (novelschloss@gmail.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Monday, May 10, 2021 6:27 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0091-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Bruno Novel
307 Annie Morgan Ct
Cheyenne, WY 82007
novelschloss@gmail.com
(248) 250-4038

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0091-01

Comment and preference noted.

COMMENT(S)

0092: Laura Salas

From: LAURA SALAS (l_salas@msn.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Friday, May 14, 2021 5:20 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

This is a good first step in establishing our independence from coal and oil.

0092-01 I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

LAURA SALAS
146 LAKE HATTIE RD
Laramie, WY 82070
l_salas@msn.com
(970) 397-8228

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0092-01 Comment and preference noted.

COMMENT(S)

0093: Christine Boggs

From: Christine Boggs (christib@rocketmail.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Friday, May 14, 2021 4:23 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

0093-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Christine Boggs
1303 Renshaw
Laramie, WY 82072
christib@rocketmail.com
(307) 760-7150

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0093-01

Comment and preference noted.

COMMENT(S)

0094: Eric Quade*

From: Eric Quade (eric.quade@mailfence.com) Sent You a Personal Message <automail@knowwho.com>
Sent: Friday, May 14, 2021 4:19 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Please approve the interconnection of the Rail Tie wind project

Dear Mr. Wieringa,

It is important to act fast to lower our carbon footprint.

0094-01

I am writing today to ask the Western Area Power Authority (WAPA) approve ConnectGen's request to interconnect their proposed Rail Tie Wind Project into WAPA's existing Ault-Craig 345-kilovolt transmission line in Albany County, Wyoming.??

I know this wind development will affect the landscape, but I believe the benefits from the Rail Tie project outweigh the relatively limited impacts from the project. Potential impacts to wildlife are real, but wind development on otherwise undeveloped ranchland is less disruptive and harmful to wildlife and other resources than more rural subdivisions would be. The economic activity this development will bring to Albany County will be a welcome addition to the county's shrinking financial resources. I appreciate the fact that new high-voltage transmissions will not be needed, and honestly I would prefer to see this development in an area that is already quite developed (as is proposed) than in a more remote, less developed area of public land where new transmission would also have to be built.

Sincerely,

Eric Quade
1051 Bonita Dr.
Laramie, WY 82072
eric.quade@mailfence.com
(307) 575-3402

This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at core.help@sierraclub.org or (415) 977-5500.

RESPONSE(S)

Western Area Power Administration

0094-01

Comment and preference noted.

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 8
 1595 Wynkoop Street
 Denver, CO 80202-1129
 Phone 800-227-8917
 www.epa.gov/region08

May 17, 2021

Ref: 8ORA-N

Mark Wieringa
 NEPA Document Manager
 Western Area Power Administration, Headquarters
 P.O. Box 281213
 Lakewood, Colorado 80228-8213
 Transmitted by email to wieringa@wapa.gov

Dear Mr. Wieringa:

The U.S. Environmental Protection Agency Region 8 has reviewed the Western Area Power Administration's Draft Environmental Impact Statement (EIS) for the Rail Tie Wind Project. In accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA), we are providing comments for your consideration.

The EPA supports increasing the development of renewable energy resources in an expeditious and well-planned manner. Using renewable energy resources such as wind power can help the nation meet its energy requirements while reducing greenhouse gas emissions. We encourage WAPA to apply its regulatory authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

The EPA has been a cooperating agency on the preparation of this Draft EIS. Many of the comments provided in this letter are consistent with recommendations we previously offered as a cooperating agency. We appreciate the mitigation measures to which ConnectGen has committed. Given the project's 109 stream crossings and the significant increase in surface disturbance, we continue to recommend adding setbacks from water resources including wetlands. The Draft EIS quantifies the number of stream crossings, acres of disturbance, soils within erosion risk categories, and depths to groundwater, but does not quantify, or use other assessment methods to determine, the environmental impacts associated with these project outputs. The Draft EIS describes aquatic resource impacts within and downstream of the project area using terms such as insignificant, minimal, or negligible. Our review of the EIS did not identify site-specific analyses supporting these conclusions. In our cooperating agency work, we recommended site-specific, and sometimes quantitative analysis for this EIS to assess project-related changes to runoff, erosion and sedimentation, and resulting impacts to water quality, stream morphology, function or aquatic habitat within the project area and downstream. We continue to recommend including those analyses in the Final EIS. If WAPA decides not to include such analysis, the enclosed Detailed Comments offer recommended actions to include in the Final EIS and Record of Decision in lieu of analysis to help protect surface water resources.

0096-01

0096-02

0096-03

RESPONSE(S)

Western Area Power Administration

0096-01

Comment and preference noted.

0096-02

Comment noted.

0096-03

The level of detail of resource analyses are commensurate with the anticipated level of impact and concern for the given resources.

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

Our enclosed comments also include additional areas where we believe further clarification or reconciliation of inconsistencies is important. We appreciate your consideration of these comments. If further explanation or discussion is desired, please contact me at (303) 312-6704 or strobel.philip@epa.gov, or Melissa McCoy, lead reviewer of this project, at (303) 312-6155 or mccoy.melissa@epa.gov.

Sincerely,



Philip S. Strobel
Chief, NEPA Branch
Office of the Regional Administrator

Enclosure

2

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

Enclosure – EPA’s Detailed Comments on the Rail Tie Wind Project Draft EIS

Impacts to Watersheds and Streams

0096-04 The Draft EIS does not contain site-specific analysis of project-related impacts to runoff, erosion and sedimentation, or resulting changes in project area and downstream water quality, stream morphology, function or aquatic habitat. As a result, the Draft EIS does not include analysis to support conclusions of insignificant, minimal, or negligible impacts to project area and downstream watersheds and streams.

0096-05 The project will involve 60 miles of new roads and 109 stream crossings and will substantially increase the surface disturbance within the project area. By our calculations and according to the amount of disturbance quantified in Table 1-2 of Appendix A (though please note that the disturbance quantified in Table 2-1 in Chapter 2 of the Draft EIS is inconsistent with these numbers), surface disturbance would increase from 3.85 % to 11.15 % of total lands in the project area. This amount of disturbance, when combined with the stream crossings, will increase runoff and is likely to increase sediment and nutrient loading. Determining whether this amount of change and number of stream crossings is significant requires analysis. In some settings, these actions could certainly result in significant impacts to water resources. Because streams in the project area have experienced downcutting, and streams downstream of the project area have impairments related to sediment loading, it is important to assess the potential for increased runoff, further incision, and water quality impacts in project area streams. If WAPA decides not to include site-specific analysis of impacts, we recommend including the following in the Final EIS and Record of Decision to help inform on potential impacts and assist in the protection of surface water resources:

0096-06

- An investigation of water resource monitoring associated with other wind projects in the western U.S. to help evaluate what impacts could occur and to what extent planned environmental protection measures can be expected to reduce impacts. For example, the Chokecherry and Sierra Madre Wind Energy Project in Wyoming within the Bureau of Land Management’s (BLM) Rawlins Field Office included a detailed watershed monitoring plan which may provide such information. Information gleaned by comparison to other regional projects and BMPs could alleviate concerns due to the lack of information for this project.

0096-07

- The Stormwater Pollution Prevention Plan (SWPPP). We emphasize that the primary factor influencing effectiveness of BMPs is regular inspections and maintenance, including reinstallation or application of the BMP if necessary. Therefore, we recommend including in the Final EIS the schedule for inspections during both construction and operations.

0096-08

- Quantification and mapping of temporary vs. permanent access roads and stream crossings. Please note that while Table 1-2 in Appendix A indicates that most of the acreage of access road disturbance would be temporary (698 out of 838 acres), the miles of roads in Table 3-44 are not separated into permanent and temporary roads, and most or all of the access roads depicted in Figure 2 of the Surface Water and Groundwater Tech Report appear necessary for operations. We also recommend confirming whether no access roads will cross perennial streams (per Table 3-44) because Figure 2 of the Surface Water and Groundwater Tech Report depicts access roads crossing perennial Pump Creek and Fish Creek.

0096-09

- A Watershed Monitoring Plan. In the absence of a site-specific and quantitative analysis of baseline and expected changes to runoff, sedimentation and other water quality values due to the increased disturbance to the watersheds in the project area, we recommend developing and

RESPONSE(S)

Western Area Power Administration

0096-04 The level of detail of resource analyses is commensurate with the anticipated level of impact and concern for the given resources. The WYDEQ has not provided comments raising concerns over the analyses or the need for more site-specific details to be considered regarding the water quality resources they regulate.

0096-05 The Rail Tie Wind Project Description includes calculated disturbance estimates based on individual facility dimensions multiplied by the number of expected facilities. This provides an accurate estimate of disturbance by facility type, but does not account for locations where facility types overlap one-another. The EIS used a disturbance estimation methodology that accounts for these overlaps through the consideration of a representative Project layout and GIS calculation of all types of required facilities across the Project. This methodology used the same facility dimensions, and instead of multiplying it lays the facilities out geographically where overlaps can be identified and accounted for in the overall calculations. ConnectGen has committed to several EPMs per WYDEQ, WYSEO, and WYGFD requirements to avoid and minimize impacts to aquatic resources, such as streams. Table 2-6 details the measures ConnectGen will take to protect water bodies and aquatic resources during the life of the project.

0096-06 Comment and preference noted.

0096-07 WQ-8 states: A Stormwater Pollution Prevention Plan (SWPPP) outlining specific erosion control measures will be prepared, and its requirements will be implemented on-site for the proposed Project. The SWPPP will comply with EPA and WYDEQ requirements. This reference to the SWPPP schedule has been noted in the EIS in section 3.15.5.3.

0096-08 See page C-233 for response.

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

RESPONSE(S)

Western Area Power Administration

0096-08

Perennial stream crossings have been updated in the EIS. Regarding the discrepancies between disturbance tables, the Rail Tie Wind Project description (appendix A of the EIS) includes calculated disturbance estimates based on individual facility dimensions multiplied by the number of expected facilities. This provides an accurate estimate of disturbance by facility type but does not account for locations where facility types overlap one another. The EIS used a disturbance estimation methodology that accounts for these overlaps through the consideration of a representative Project layout and GIS calculation of all types of required facilities across the Project. This methodology used the same facility dimensions, and instead of multiplying, it lays the facilities out geographically, where overlaps can be identified and accounted for in the overall calculations. Clarification has been added to chapter 2 of the EIS to describe this difference.

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

0096-09, continued

including a commitment by the project proponent to a watershed monitoring plan in the Final EIS. Ideally, such a monitoring plan would start prior to construction and continue during construction of the project and for a period of years following construction and include stream channel cross-section and longitudinal (up-and-downstream) profile monitoring, vegetation cover monitoring, water quality sampling, streamflow measurements, and photographic documentation. Results of the monitoring could be used to make necessary adjustments or additions to the BMPs being implemented and would be informative for purposes of future project analyses.

- Additional information to ensure compliance with Clean Water Act Section 404 (see further comments on this below).

0096-10

On page 3-162 of the Draft EIS, it states that “the Project is anticipated to disturb only a small proportion of the overall watersheds within the Project Area (only 7,924.1 linear feet).” However, the 7,924.1 linear feet correspond to stream crossings (including transmission lines, which are not included in Table 3-44), and so this is not equivalent to the total amount of disturbance within project area watersheds. If the amount of disturbance is to be used as an indicator of watershed impacts, we recommend quantifying the total acreage of disturbance in each 12-digit sub-watershed in the project area and comparing those amounts to the current acreage of disturbance in each respective watershed. It would also be helpful to include both absolute acreages and percentages of disturbance.

0096-11

The Draft EIS clarifies that open-bottom culverts would be used where fish passage is a concern in order to avoid changing stream morphology or removing suitable fish habitat. We wish to note that open-bottom culverts do not eliminate impacts to stream morphology, and the degree to which alterations to stream morphology are minimized would depend primarily on the size and placement of the culvert. Even with optimal size and placement, often the entrance and exit of the culverts will have armoring to try to keep the stream from shifting away from the culvert location and there would likely be some reduction in floodplain connectivity and in lateral migration of the channel through the culvert. With that said, we agree that bottomless culverts are a great improvement over completely enclosed culverts, and given the number of road crossings, coupled with the existing downcutting and the potential for increased runoff (and thus further downcutting), adequate culvert design is one of the primary ways that impacts to streams could be minimized. We therefore recommend using adequately sized open-bottom culverts whenever possible, regardless of whether fish passage is a concern.

0096-12

In addition to open-bottom culverts, the Draft EIS also states that stream protection measures would include the use of low-water crossings. Although low-water crossings such as unvented fords present advantages in certain scenarios, such as where large flows of sediment or large woody material are expected, low-water crossings also often route sediments directly into the channel and can contribute to stream bank and soil erosion and the introduction of soil and other pollutants into the stream when vehicles cross the channel. Hardening and armoring of the surface and appropriate spacing of water control structures and drainage features can reduce runoff and sediment delivery to streams. However, because of their potential impacts on water quality, fords should only be used when traffic is infrequent.

0096-13

Because access roads throughout the Rail Tie Wind Project site would be subject to high volumes of heavy, oversized vehicles during the construction and decommissioning phases of the project, we

RESPONSE(S)

Western Area Power Administration

0096-09

Comment and preference noted.

0096-10

The Rail Tie Wind Reconnaissance Level Assessment Report (Tetra Tech 2021) has been provided by ConnectGen. This report details current disturbance within each 12-digit subwatershed (HUC-12). These values and potential project disturbance within the Project Area, broken out by each HUC-12, have been incorporated into the final EIS in section 3.15.5.3.

0096-11

Comment and preference noted. Culvert design and placement will follow WYGFD and WYSEO requirements. This has been noted in sections 3.4.5.3 and 3.15.5.3.

0096-12

Comment and preference noted.

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

0096-13, continued
 recommend that fords only be used when the use of culverts is not practical or appropriate. For example, culverts may be impractical on wide, shallow channels where an adequately sized culvert would require deep embankments and excessive fill. If and where fords are necessary, we recommend they be limited to those ephemeral stream reaches where the channel is broad and shallow (not entrenched), and where approaches to fords are both low and stable enough to support traffic and proper drainage. Fords are not appropriate for deep narrow channels and should not be used if significant alteration of the stream bank is required. Ideally, fords should only be used in stream reaches with a firm bed and bank and should not be used in soft channel bottoms without adequate armoring and reinforcement. We recommend that the Final EIS clarify which types of low-water crossings would be used, where they would be used and how ConnectGen will ensure that such structures are appropriately located and designed.

0096-14
Impacts to Wetlands and Compliance with Clean Water Act Section 404
 On page 3-165 the Draft EIS states, "If Project impacts result in dredge or fill activities in wetlands or waterbodies, ConnectGen will comply with Clean Water Act (CWA) Section 404 permitting requirements[.]" If avoidance of the discharge of dredged or fill materials to no more than 0.5 acre of wetlands is not anticipated, we recommend coordinating with the U.S. Army Corps of Engineers (Corps) prior to publishing the Final EIS to determine if the proposed project will require an individual Section 404 permit under the CWA. This is advisable to ensure that the proposed action is the least environmentally damaging practicable alternative consistent with requirements under the CWA Section 404(b)(1) Guidelines. We also recommend including a verified jurisdictional delineation for the project area from the Corps in the Final EIS, as well as providing a table in the Final EIS identifying the acreage of jurisdictional waters for each project feature. This table should describe each type of water and include the direct/indirect permanent and temporary impacts to those waters. Since issuance of an individual permit requires analysis under NEPA, it would be most efficient to do the analysis during the current NEPA process.

0096-15
 For wetlands and other special aquatic sites, the Section 404(b)(1) Guidelines establish a presumption that upland alternatives are available for non-water dependent activities. The Guidelines require that impacts to aquatic resources be (1) avoided, (2) minimized, and (3) mitigated, in that sequence.
 0096-16
 Therefore, we recommend that, if possible, the Final EIS demonstrate that impacts to wetlands and other special aquatic sites will be avoided to the maximum extent practicable. For example, it is not clear why it is necessary for turbine construction footprints to overlap 0.4 acre of wetland (see page 3-165).

0096-17
 On page 3-165, the Draft EIS states, "The analysis area crosses a total of 9.9 acres of wetlands (table 3-45)." However, Table 3-45 quantifies 9.9 acres of "construction disturbance" while the "analysis area" for this section of the Draft EIS is described as the siting corridors plus a 300-foot buffer. If 9.9 wetland acres are anticipated to be disturbed by construction rather than merely overlap with the analysis area as defined, we recommend modifying the sentence quoted.

0096-18
 On page 3-165, the Draft EIS states that turbine construction footprints would overlap 0.4 acre of wetland and project operation access roads would cross 0.8 acre of wetland; however, Table 3-45 only indicates 0.8 acre of permanent wetland disturbance. We recommend reconciling this apparent discrepancy (e.g., by clarifying that the construction footprints that overlap wetlands are temporary). In

RESPONSE(S)

Western Area Power Administration

0096-13
 Where ford crossings are necessary, WYGF and WYSEO requirements will be followed and recommendations considered for applicability. Consideration of ford crossings and reference to WYGF and WYSEO standards have been incorporated into section 3.15.5.3.

0096-14
 ConnectGen would coordinate with the U.S. Army Corp of Engineers prior to commencing construction activities. The U.S. Army Corp of Engineers was invited to participate in the NEPA process for the Project. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, "Cooperating Agencies," for a complete discussion of cooperating agencies.

0096-15
 Potential impacts to wetlands were considered based on potential preliminary design provided by ConnectGen and habitat assessments of potential wetland features conducted by TetraTech (2020). ConnectGen would complete a full field delineation of wetland features and consultation with U.S. Army Corps of Engineers after final design is complete but prior to construction.

0096-16
 Potential impacts to wetlands were considered based on potential preliminary design provided by ConnectGen and habitat assessments of potential wetland features conducted by TetraTech (2020). A true delineation of wetland features would not be conducted until final design is complete but prior to construction. ConnectGen may avoid construction disturbance areas within wetlands as project siting and micrositing continue, in alignment with EPM WQ-1, which states: "The Project will identify, avoid, and/or minimize adverse effects to wetlands and waterbodies," and WQ-4 : "Wetland and aquatic resource boundaries will be clearly identified on all construction plans and will be posted with signs and flagging in the field." These details are included in the EIS in section 3.15.5.3, "Issue Statement #3."

0096-17
 Sentence has been modified to use "construction disturbance."

0096-18
 The sentence noted begins with "Temporary" and then details the temporary impacts to wetlands, to include "turbine construction footprints would overlap 0.4 wetland acre."

COMMENT(S)

0096: Philip S. Strobel, U.S. Environmental Protection Agency, continued

0096-19 addition, on page 3-166, the Draft EIS states that “only 2.2 percent (1.9 acres) of the Project Area occurs on hydric soils” while Table 3-43 says 1,896.7 acres of hydric soils exist within the siting corridors, and we note that the siting corridors make up a subset of the Project Area as that area is defined in the Executive Summary (page ES-i). We recommend reconciling this discrepancy as well.

Impacts to Groundwater

0096-20 The Draft EIS indicates that no environmental protection measures for groundwater or groundwater/surface water connectivity are currently planned. In accordance with BLM’s Wind Power Programmatic EIS,¹ we recommend identifying areas of groundwater discharge and recharge and their potential relationships with surface water bodies. We also recommend mitigating potential effects to groundwater and surface water connectivity and aquifer segmentation or redirection by including groundwater recharge and discharge areas as a consideration during turbine placement. This type of mitigation may be especially important if the pier style rather than the mat style of turbine foundation is utilized or if the construction would cause any aquifers to connect. The Draft EIS does not anticipate connection of aquifers to occur, but it is not clear how that conclusion was reached.

0096-23 Page 3-27 of the Draft EIS states that the source of water supply for the project “would be obtained by entering into temporary water use agreements with landowners with existing water sources within or near the Project, and/or from drilling new wells from areas that have been determined to not be hydrologically connected to the Platte River system.” We recommend that the FEIS confirm the availability of an adequate water supply for construction and operations of the proposed project.

¹ <https://windeis.anl.gov/documents/fpeis/maintext/Vol1/Vol1Ch5.pdf>.

RESPONSE(S)

Western Area Power Administration

0096-19 This discrepancy has been reconciled.

0096-20 Data on groundwater discharge and recharge in and near the Project Area are limited, though the data show that this area recharges quickly (ERM 2010b) at a rate of about 75 to 150 centimeters per year. The Project Area lies within the Casper groundwater system (Mazor 1990), and “Green Area” maps developed by the WYSEO (WSGS 2013) show that Project activities that may impact discharge and recharge would not have connectivity with the North Platte River or its tributaries. The EIS was written using the best available peer-reviewed science. No additional information has been found to inform specific areas of groundwater discharge and recharge in the Project Area; this poses a data limitation that has been noted in the final EIS in section 3.15.5.3, “Issue Statement #2.”

0096-21 Wyoming groundwater data indicate that the aquifers do not overlap in the siting corridors; therefore, the surface-disturbing activities would not connect aquifers (WSGS 2021). Well bores are generally small in diameter (0.17–1.0 feet) and would not likely impact groundwater connectivity. Furthermore, belowgrade-disturbing activities would not likely impact groundwater availability, such as aquifer recharge or discharge. Though there is little information about areas of groundwater discharge and recharge and is a limitation of the data, aquifers in this area have been shown to recharge quickly (ERM 2010a) at a rate of about 75 to 150 centimeters per year, and therefore any loss in groundwater availability would likely be inconsequential. These points are noted in section 3.15.5.3, “Issue Statement #2.”

0096-22 In section 3.15.5.3, “Proposed Action,” the draft EIS explains that belowgrade-disturbing activities, such as disturbance for turbine foundations and newly drilled wells, could alter groundwater connectivity; however, these activities are not anticipated to increase groundwater connectivity because Wyoming groundwater data indicate that the aquifers do not overlap with the siting corridors where Project activities would take place. Belowgrade-disturbing activities will therefore be within single aquifer areas and will not modify connectivity.

0096-23 Water used for construction and operation of this Project would be subject to Wyoming water law and WYSEO rules and regulations, which include considerations for new uses of water and/or temporary or permanent changes of existing water rights under certain conditions.

COMMENT(S)

0097: Paul Montoya, Albany County for Smart Energy Development

From: Paul Montoya <montoya.paul@gmail.com>
Sent: Wednesday, April 28, 2021 9:13 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Re: Rail Tie Wind Project Public Hearings

Good morning Mr. Wieringa.

0097-01

Thank you for contacting me. Yes, I did receive your reply to our letter. I was disappointed in your reply though, as any public meeting would be held in Wyoming and not Lakewood. The CDC yesterday lifted mask mandates for outdoor events. I feel that if WAPA really wants to return to public meetings, they would consider an outdoor event in Laramie. By appearance this just seems to be a convenient way to avoid full public participation.

We too take COVID-19 seriously, however federal guidelines are now allowing these types of gatherings so I see no excuse for not trying to host a public meeting. The virtual meetings excludes people with technical disabilities from participating in the public discussion.

I still hope that WAPA will reconsider their decision.

Paul

Paul Montoya
(307) 421-5188

From: "Wieringa, Mark" <Wieringa@WAPA.GOV>
Date: Tuesday, April 27, 2021 at 1:06 PM
To: "montoya.paul@gmail.com" <montoya.paul@gmail.com>
Subject: Rail Tie Wind Project Public Hearings

Dear Mr. Montoya,

I originally sent my reply to your recent letter to the only email I had, the info@ACSED.org address. Today I got your direct email from SWCA, so I am forwarding my reply directly to you to ensure that you receive it.

RESPONSE(S)

Western Area Power Administration

0097-01

Because of COVID-19 and the need for several members of the Project Team to travel from out of state, WAPA decided that any kind of in-person meeting was not possible. Please see section 5.1, "Public Involvement and Scoping," for details on public involvement.

COMMENT(S)

0097: Paul Montoya, Albany County for Smart Energy Development, continued

Sincerely,

Mark Wieringa
NEPA Document Manager
Rail Tie Wind Project

From: Wieringa, Mark <Wieringa@WAPA.GOV>
Sent: Wednesday, April 21, 2021 2:04 PM
To: info@ACSEFD.org
Subject: Rail Tie Wind Project Public Hearings

Dear Mr. Montoya,

I received your letter on the behalf of the Albany County for Smart Energy Development concerning the proposed Rail Tie Wind Project. In that letter you requested an in-person public hearing in addition to the two virtual public hearings scheduled for next week, April 28th and 29th.

WAPA takes the Covid-19 pandemic very seriously. Nearly all WAPA employees have been teleworking for over a year now, with access to our offices restricted to absolutely necessary visits. Strict distancing and other protocols to reduce the risk of Covid transmission have also been instituted for our field crews. Jefferson County, Colorado, where WAPA's headquarters office is located, is currently a Covid-19 hot spot with 27.6 new cases per 100,000 people, up from 23.7 last week. Colorado hospital admissions are also up 7% from the previous week. Wyoming may have loosened their restrictions on public gatherings, but the health and safety of all concerned is of paramount importance.

Virtual public hearings are a safe and effective alternative that will provide a forum for all Project stakeholders to voice their questions and concerns. Even with the opportunity for verbal comments provided by the virtual hearings, WAPA encourages all interested parties to submit written comments. In our experience written comments are usually more reasoned, complete, and better supported than verbal comments. All comments, regardless of the form of delivery, will be analyzed and considered. I urge your organization to provide detailed, substantive comments on the accuracy of information in the draft EIS, the adequacy of methodology and assumptions used in the analysis, any relevant new information that we should consider, and any additional alternatives not analyzed in the Draft EIS.

The draft EIS, supporting technical reports, and other associated information can be found on the Project website. The virtual public hearing presentation may also be found here as soon as it is finalized. Your organization is welcome to review and comment on all this extensive information. The Project team does not believe that the lack of a traditional in-person public hearing in any way

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0097: Paul Montoya, Albany County for Smart Energy Development, continued

limits the ability for stakeholders and the public to comment on this proposed Project. Adequate means of public involvement and comment have been provided, and all input received will be considered. Your organization's request for an in-person public hearing has been carefully considered by the Project team and, based on the reasons provided above, we have determined that we will not be hosting an in-person public hearing.

Sincerely,

Mark Wieringa
NEPA Document Manager
Rail Tie Wind Project

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0098: Shelley Bayard de Vollo, Larimer County Environmental Science Advisory Board

From: Shelley Bayard de Volo <sbayard@larimer.org>
Sent: Wednesday, April 21, 2021 8:39 AM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Re: Request extension for open comment period

Hi Mark,

Thanks for your response and your willingness to work with us on our schedule. It's much appreciated.

Respectfully, Shelley

On Wed, Apr 21, 2021 at 7:03 AM Wieringa, Mark <Wieringa@wapa.gov> wrote:

Hello Shelley,

Thanks for checking in. To date, we have not received any other requests for an extension of time to comment. If we receive additional requests we may consider one, but at this point I am not inclined to offer a general extension to all interested parties. That being said, it appears from your message that any comments from the county would only be a few days late. You have my assurance that the county's comments will be accepted for full consideration if they are received past the close of the comment period.

Sincerely,

Mark Wieringa
NEPA Document Manager
Rail Tie Wind Project

From: Shelley Bayard de Volo <sbayard@larimer.org>
Sent: Tuesday, April 20, 2021 2:54 PM
To: Wieringa, Mark <Wieringa@WAPA.GOV>
Subject: [EXTERNAL] Request extension for open comment period

Mr. Wieringa,

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0098: S. Bayard de Vollo, Larimer County Environmental Science Advisory Board, continued

0098-01

On behalf of Larimer County and the Larimer County Environmental and Science advisory Board (ESAB), I am requesting an extension to the open public comment period to facilitate our administrative process for presenting comments made by our ESAB and Natural Resources staff to the Larimer County Board of County Commissioners (BOCC).

The ESAB meets May 11th, and at that meeting they will deliberate on their review of the Rail Tie Wind Project DEIS, and vote on whether to pass those comments onto the BOCC. The earliest the BOCC could receive those comments from their Advisory Board is at their worksession scheduled for May 17th. The earliest the BOCC could vote to submit those comments to WAPA is at their administrative matters meeting May 18th.

I am communicating this schedule to you so that you are aware, and in the event you receive additional requests for an extension to the comment period, I would be interested to hear whether or not that will occur.

Thanks in advance, Shelley

--

Shelley Bayard de Volo
Environmental Coordination Specialist
Environmental and Science Advisory Board Liaison

Engineering Department
200 W Oak St, Fort Collins, 80521 | 3rd Floor
W: (970) 498-5738 | M: (970) 481-5941
sbayard@larimer.org | www.larimer.org/engineering

In response to COVID-19 Safer at Home Orders, I am teleworking from home most days. If you need to call me please try my mobile number at 970.481.5941

--

Shelley Bayard de Volo
Environmental Coordination Specialist
Environmental and Science Advisory Board Liaison

Engineering Department
200 W Oak St, Fort Collins, 80521 | 3rd Floor
W: (970) 498-5738 | M: (970) 481-5941

RESPONSE(S)

Western Area Power Administration

0098-01

Comment noted. The public comment period is described in section 5.1.2, "Scoping Period," and the comment provided by the Environmental and Science Advisory Board is included in appendix C.

COMMENT(S)

0098: S. Bayard de Vollo, Larimer County Environmental Science Advisory Board, continued

sbayard@larimer.org | www.larimer.org/engineering

In response to COVID-19 Safer at Home Orders, I am teleworking from home most days. If you need to call me please try my mobile number at 970.481.5941

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0099: Frederick L. Ames

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:43:18.270

0099-01

Frederick L. Ames: Oh hi. I wanted to wait because I'm not a resident of Wyoming, but I am from Massachusetts. And I've submitted a written comment, excuse me, by email. But the one thing I question is that it appears, and this was in the article in the Laramie Boomerang, that all they can do to mitigate the impact of the views from the Ames Monument has been done. And that's sort of the end of the story. So my concern is that there probably are, I hope, there are further efforts of mitigation and that there be more discussion of those. Thank you.

00:44:03.750

01:43:22.020

0099-02

Frederick L. Ames: Yes, and I apologize, I will do it this time. I guess that I'm nervous speaking in these things. So, first name is Frederick, F-R-E-D-E-R-I-C-K, and the last name is spelled A-M-E-S. I am concerned, obviously, about the monument and I hate to almost sort of feel like I'm the only one out there who, who seems to say anything about it. I know that's not true. The monument is really a part of that environment and again, as I wrote to the Laramie Boomerang, that is the whole part of the design is to blend in with the environment, to celebrate it, to become part of it, which is one of the issues that really is underlying this discussion tonight. So again, I know my piece of the puzzle seems sort of an ephemeral, but I believe it really has tremendous value to the country and our culture. Thank you.

01:44:26.370

02:10:04.950

Frederick L. Ames: Thank you, I just have a question: Am I the only one out here? Thank you.

02:10:27.780

02:27:49.140

Frederick L. Ames: Oh, thank you. I just want to make a comment and thank those who spoke up and said those kinds of things about the Ames Monument. I know it's out there. I'm sorry if my first comment sounded like nobody, you know, is really interested in it, but that's obviously not the case. I have learned a lot this evening about the environmental situation and the damages that can occur that

RESPONSE(S)

Western Area Power Administration

0099-01

Mitigation of impacts that could occur from the Project to the Ames Monument NHL has not yet taken place. Mitigation would be addressed in a PA, as described in the EIS (see section 3.6.5.3, "Proposed Action," and Appendix B, "Programmatic Agreement"). As stated in the EIS (see section 3.6.5.2, "Methods of Analysis"), the PA would also address special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing the monument's exceptional value in commemorating or illustrating the history of the United States. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen's Project Description (see chapter 2, "Proposed Federal Action and Alternatives, and ConnectGen's Project," and Appendix A, "Project Description"). Avoidance of impacts through the design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed with consulting parties and pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA as impact offset, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources (although offset) could be permanent and long term. Impacts from blade movement or rotation and the vertical elements of turbines are further addressed in section 3.5.2.3, "Proposed Action."

0099-02

Comment noted.

COMMENT(S)

0099: Frederick L. Ames, continued

way. It was good. I've been a bit, somewhat focused on one area. It's good to learn about the other concerns to and to hear the responses from the developers and thank you for allowing us to do this.

02:28:29.070

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0100: Barb Smith

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

02:10:41.910

0100-01 Barb Smith: Hi, my name is Barb Smith, B-A-R-B S-M-I-T-H. We have owned land, a fourth a mile from Ames for 20 years because of the views. We have constructed a home there now. Ames and the valley are our viewscape. We specifically have lots of windows because of the view from our property. We look straight at Ames Monument. Ames Monument is one of the very few national monuments in Wyoming and hundreds of visitors go there. We can see them drive there, and then we can see them leave again. We've also visited with them if we've gone up to the monument and to look for a visit. We consider it a treasure to look at and that's what we see out our front windows. Also, there's a trail across our property that was there when we purchased it in 1999. The trail has never re-foliaged itself, even though it is never driven on. The night skies and views, Ames, are why we own there. It is a hostile climate, but you ignore that for the views, the wildlife. If you take that away, there's no reason to own there. Thank you.

02:12:11.610

RESPONSE(S)

Western Area Power Administration

0100-01

Comment noted. Impacts to the Ames Monument are considered in section 3.6, "Cultural Resources and Native American Concerns"; impacts to visual resources are considered in section 3.2, "Aesthetics and Visual Resources"; and impacts to vegetation are considered in section 3.14, "Vegetation."

COMMENT(S)

0101: Alan Minier

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

01:20:41.430

0101-01 Alan Minier: Thank you for giving me an opportunity to talk. I own a house in the vicinity of the Project, and I use Pumpkin Vine Road and Cherokee Park Road to reach it, so two of the local roads. I urge you to consider the No Action Alternative seriously at this point. I will be submitting extensive written

0101-02 comments, but I want to give you an example of the kind of thing that concerns me. The EIS recognizes the problem of turbine ice throw. It also recognizes that the County provides for a general, not a specific, but general setback from county roads of 1.1 times tower height. But if I read into the health and safety report, on pages seven and 11 both, it goes on to say that ice throw is not anticipated at more than approximately 1.5 times the turbine blade tip height. So, on its face, the EIS says that the ice throw danger exceeds the County setback. So I don't see how you can say the risk is mitigated at all. In fact, I think a greater setback is required. I think the right number is the one that's used in the adjoining county, Laramie County, which is 1.5 times the cell height plus rotor diameter. And I think that's more

0101-03 reasonable standard. So, overall, I question the premise that is underlying a lot of the environmental protection measures here, which is that you can rely on the County or County particular or other agencies to be ensuring that the mitigation measures that are represented here are either going to be taken out by—undertaken by ConnectGen, or will be effective when they are. Thank you for listening to me and I will be, as I said, providing written comments.

01:22:19.830

RESPONSE(S)

Western Area Power Administration

0101-01 Comment and preference noted.

0101-02 Ice throw was considered as an impact to public health and safety in section 3.10, “Public Health and Safety.” Although ice throw is a risk, ConnectGen has minimized that risk by designing the Project to meet the Albany County Commissioners’ Project permit condition that the turbines be set back 1.5 times turbine height plus rotor diameter from public roads (see section 2.2.6, “Environmental Protection Measures”) and would equip the turbines with a SCADA system that detects ice buildup and shuts down the turbines automatically before ice throw occurs. The SCADA system includes sensors that detect ice buildup and curtail operation when this occurs.

0101-03 EPMs and requirements described in the EIS are adopted and imposed as part of Federal, State, or local permits and authorizations.

COMMENT(S)

0102: Bill Dorcey

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:58:15.960

Bill Dorcey: Can you hear me? Okay, I have some questions and comments here. Kind of a mix. I wonder how many people around this meeting, have visited the proposed area? I guess I'll submit that in writing. Why not erect the wind farm near Cheyenne that's been abandoned by Excel Energy instead of create a whole new landscape? Then there's wind farms in Oklahoma and California that are being abandoned, instead of being rehabbed. I don't see what the benefit is of contaminating more rural areas with these wind farms that will have to be demolished in around 20 to 30 years. And for me there's no benefit for this Project. It's not gonna reduce my electrical bill. And I would like to get a list of donation spent by ConGen to the city of Laramie Ivansen hospital, Albany County Pilot Hill Project, if any, and an update to the surveys and studies. Seems like some of these studies go back 2009, and I think there needs to be newer studies, because the elk herds have kind of come back into this area—been pushed back into this area due to recent fires in the Medicine Bow Mountains, and so they might stay around this area, but if we're gonna put up wind farms, that's going to chase the wildlife off. And already the wind farm that's been put in between Buford and Cheyenne has displaced the antelope in that part of the country, because they the windmill blades turning has pushed the antelope out of what was their normal habitat. Has pushed them to other areas and Albany and Western Laramie County. And I'd like to get an accurate placement of the wind farms. My first name is Bill, last name Dorsey. D-O-R-C-E-Y. That's it.

0102-01

0102-02

01:00:54.900

RESPONSE(S)

Western Area Power Administration

As described in the Executive Summary, section ES 4, “Western Area Power Administration’s Proposed Federal Action,” and section ES 4.4, “Proposed Federal Action Alternative Considerations,” WAPA’s role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency’s Tariff and the Federal Power Act. WAPA’s decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA–managed transmission system. Thus, although ConnectGen’s Project is considered a connected action to WAPA’s Federal decision of granting an interconnection to the agency’s transmission system, WAPA lacks the authority to site ConnectGen’s Project at a different location, to change the Project’s generation technology (e.g., wind vs solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA’s EIS review of the effects of the Project, as a connected action, meets that obligation.

0102-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. The majority of technical reports and data used to prepare the EIS were prepared specifically for the Rail Tie Wind Project; reports prepared for the Hermosa West Wind Farm Project were only used in limited cases where data were still applicable.

0102-02

COMMENT(S)

0103: Connie Wilbert

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:34:55.260

0103-01
Connie Wilbert: Okay. Hi. Thank you. My name is Connie Wilbert I am director of Sierra Club Wyoming Chapter. Let's see, my last name is spelled W-I-L-B-E-R-T and my first name is Connie C-O-N-N-I-E. I'm just going to make very brief comments right now because we will be submitting more detailed written comments. So, I just want to do a little high-level overview right now. First of all, I'll start by thanking you for holding this public meeting and giving residents an opportunity to comment on this Project. I'll give you a bit of background on Sierra Club Wyoming. We have about 6,000 members and supporters statewide. We have read the draft environmental impact statement and we have basically concluded that while we recognize that commercial wind development, like almost any other kind of development, does affect the landscape and it does have impacts, after reviewing the information in the draft environmental impact statement, we have concluded that the benefits of developing this Project outweigh the relatively limited impacts of the Project and, in particular, I want to just speak to the to the visual and aesthetic impacts that were described in the presentation for just a moment. Basically, one of the things that we looked at was balancing the impacts that this Project would have in an area that is already, by many standards, quite well-developed, with a highway and a railroad and many rural subdivisions and so forth scattered throughout the Project Area. And evaluating those impacts relative or, or kind of compared to developing a similar Project in a more remote rural area and our conclusion was that the impacts in this location would be less. So that's part of our thinking, and I think I'll just stop there, because, as I said, we will be submitting more substantive written comments later for your consideration. Thanks again for a very informative presentation and for providing this opportunity for folks to share their opinions.

00:37:34.440

RESPONSE(S)

Western Area Power Administration

0103-01
Comment and preference noted.

COMMENT(S)

0104: Donna Lange

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:52:10.200

Donna Lange: Hi my name is Donna Lange, can you hear me? D-O-N-N-A L-A-N-G-E. I am speaking to you today to express my concerns about the Rail Tie Wind Project. This draft environmental study has pointed out there will be drastic impacts to the Project area and beyond. I'm specifically concerned about water. Water is life. Any possibility of contamination to water, whether by unregulated blasting, concrete forms, or leaking of unregulated nacelle oils is not only an environmental nightmare, it's a disaster to the families living adjacent to this proposed Project. I am also specifically concerned about the increased fire danger this Project will bring to the area. Nacelle fires are not the only issue, but the documentation of wind towers being lightning attraction to an area for many miles surrounding each tower is frightening. The proposed Project Area's southwest boundary is adjacent to forested area with the Roosevelt National Forest being just a few miles further. With such increase danger, fire suppression systems on each tower should be required. With an increased lightning strike potential that goes far beyond the Project boundaries to adjacent subdivisions and homes, this makes an environmental risk very great. In order for this Project to be a good neighbor, and fit into this community, and show concern for our immediate environment, they must do more proactive fire mitigation than rely on a volunteer fire department and provide 500 gallons of water. Relying on these firefighting measures is unreasonable for an industrial complex of this size. I'm also very dismayed that this Project will not be a good neighbor and fit into the current community and landscape, but it will become the dominant and prominent feature of well over 400,000 acres. This definitely impacts the local environment and obliterates the character and identity of Ames Monument, a national treasure, and the communities of Tie Siding, Pumpkin Vine, Vedauwoo, and all of south Albany County. Because of the disastrous possibilities. I'm very concerned and I ask that you find the environmental impact too significant to allow this Project to go forward. Concern for the environment begins at home and close to home. I appreciate your study of this specific area and taking my comments into consideration. Thank you.

00:54:51.660

01:46:28.050

Donna Lange: Hi, my name is Donna Lange. Can you hear me? D-O-N-N-A L-A-N-G-E. I am commenting on the eagle questions that were answered. And I guess, I want to make sure that I understand this correctly, so you may answer this question form later, I guess. But do I understand this, if a person or a company gets—and I think you said it was a BGPA permit—it absolves them of the Federal law against killing an eagle? And if WAPA is suggesting that ConnectGen get this said permit, can we figure WAPA believes eagles will be killed by this Project? If this is true, why then does WAPA not also suggest to ConnectGen to force to make a specific bird killing mitigation in this EIS? I heard earlier, another person comments that painting one blade a different color may be an option, yet it wasn't in the impact, this environmental impact study, a mitigation option. If it is known that eagle killing will occur, it's a known environmental impact, and mitigation for bird kill should be included in the environmental impact study.

0104-01

0104-02

0104-03

0104-04

0104-05

RESPONSE(S)

Western Area Power Administration

0104-01

Comment noted. The impacts to water resources are considered in section 3.15, "Wetland and Water Resources."

0104-02

The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a discussion about the availability of additional fire resources as part of wider state and federal dispatch and mutual aid across the region and how that bolsters local fire department response. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and available in the Project administrative record.

0104-03

Comment noted. The impacts to aesthetics and social resources are considered in section 3.2, "Aesthetics and Visual Resources," and section 3.12, "Social and Economic Resources (including environmental justice)."

0104-04

Comment and preference noted.

0104-05

See page C-250 for response.

COMMENT(S)

0104: Donna Lange, continued

And also, I would like to know if you can please give me the complete name of the permit, and if I had one, the letters and what the complete name of that permit is. Thank you.

01:48:08.520

RESPONSE(S)

Western Area Power Administration

0104-05

Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures. Although the results of recent research on this topic appear to be promising, the study was performed at a small scale, and additional research is necessary to replicate results. Additionally, the painting of turbine blades may result in other impacts, such as visual, or inconsistencies with county turbine painting requirements. At this time, the FAA requires turbines (as a whole) to be white or off-white in color.

COMMENT(S)

0105: Emma Clute

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:39:25.200

Emma Clute: Can you hear me all right? Okay, my name is Emma Clute, spelled E-M-M-A C-L-U-T-E. I am a resident of Albany County. I have lived here my whole life. And I am deeply concerned about this Project. In brief, I would suggest, and hope that WAPA would take a no-connection resolution for the Rail Tie Wind Project and, in addition to the issues with the visual intrusions to the area, which I have to say is not inconsequential, given that we have tourism is such a huge part of our economy here. I mean people come here because we have open spaces and the development to land that is involved in ranching you know erecting fences and things like that or putting a highway through is simply not comparable to the disturbance that is involved in installing 150-some turbines. I'm also concerned about the quantity of fiberglass blades that will be produced in this Project and the fact that those are going to go into our landfill. I'm concerned about what reclamation plans there are in 35 years and concerned about the relationship to the aquifer. With all of this equipment that will be going into this area, in the construction process. And I understand that the judgment of the EIS was that the impact to wildlife would not be that significant and would end at the end of the Project, but we're talking 35 years. Which is a long Project, and that's long enough, I believe, for the different migratory herds to have to change their paths. And so I understand that when we zoom out and look at these things in terms of, you know, just abstract numbers, but they don't seem consequential. But for those of us who are going to be living here and have elk wandering through our front yards already, these things do make a difference and so thank you very much for the opportunity to share our comments and express our concerns.

00:42:00.210

00:50:34.620

Emma Clute: Thank you. Do I need to spell my name again? I can, and I'm-- Okay, C-L-U-T-E. I just wanted to second Mr. Opgenorth's observation about the elk herds and, and note that I've seen the herds northeast of the transmission line corridor. And he noted that they were, I believe, southwest. So it's a large area that they are traveling in. And I really appreciated Ms. Davis' comments about the danger of wild flower—fire. It's a very, very real concern for us, and I would also like to note that we have also been able—unable to secure fire insurance. So it's a very real problem for all of the families that are living in the surrounding area of this Project. Thank you.

00:51:41.880

01:17:57.480

Emma Clute: Thank you. My name is Emma Clute. It's spelled E-M-M-A C-L-U-T-E. I'm looking at the EIS statement and the environmental protection measures that are listed towards the end. And I'm kind of

RESPONSE(S)

Western Area Power Administration

0105-01 Comment and preference noted.

0105-02 Comment noted. The impacts to aesthetics are considered in section 3.2, "Aesthetics and Visual Resources," and the impacts to the local economy are considered in section 3.12, "Social and Economic Impacts (including environmental justice)."

0105-03 Technology and construction/decommissioning techniques available at the time of decommissioning are expected to have changed from their current state. At the time of decommissioning, ConnectGen would comply with all requirements for materials disposal and recycling available.

0105-04 Comment noted. Decommissioning is discussed throughout the EIS, and the impacts to water resources specifically are considered in section 3.15, "Wetland and Water Resources."

0105-05 Comment noted. The impacts to terrestrial wildlife are considered in section 3.4, "Aquatic and Terrestrial Wildlife and Special-Status Species."

0105-06 See response to comment 0105-06.

0105-07 Comment noted.

0105-08 See page C-252 for response.

COMMENT(S)

0105: Emma Clute, continued

0105-08

surprised given, you know, the assertion that ConnectGen is, you know, very concerned about preserving the integrity of our environment and our wildlife, there doesn't seem to be any provision for painting one of the turbine blades on each turbine in order to prevent or try to discourage birds from flying into it. And I know that that has been done at other turbine sites, other installations and seems to be enough, at least a somewhat effective measure. It seems quite simple so I'm a little surprised that that is not mentioned as a possible option. And I also, as other speakers have noted, this area is marked as a crucial wildlife area and one of the types of wildlife that is known to have habitats in the planned area are eagles. Bald eagles and golden eagles nest in this area. They hunt in this area. I've personally seen many daily. And so it seems like if ConnectGen were actually concerned, and or genuine in their concerns I suppose, that's such an obvious thing to do. And I think it's a little bit representative of the entire handling of this Project, as Ms. White has observed, that there seems to be a disconnect between the expressed intentions and the actual plan, planning, so thank you.

01:20:08.580

02:04:46.800

0105-09

Emma Clute: Thank you. Emma Clute, E-M-M-A C-L-U-T-E. I noticed that there was a written question regarding whether the EIS indicates if this is a critical wildlife habitat and that the response was that there is no designated critical habitat protected pursuant to the Endangered Species Act within the proposed Project's footprint and I just wanted to comment and note that the BLM's west-wide mapping project does indicate that the Rail Tie Wind Project interrupts the summer and year-round distribution areas for both golden and bald eagles, and that it abuts a sage-grouse General Habitat Management Area. Now for the sage-grouse, it's not, you know they're adjacent, but I don't think that anyone has gone out to tell the sage-grouse that they're not allowed to go into the Project Area. So, although I'm not familiar with the rules surrounding whether something is designated as a critical habitat pursuant to the specific Endangered Species Act, there are endangered or threatened species which are living in this area and using it as a habitat, so thank you.

02:06:16.590

RESPONSE(S)

Western Area Power Administration

0105-08

Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. Section 3.5.5, "Issue Statement #3," has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS's preservation standard for bald and golden eagle local area populations. The FWS's process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures. Although the results of recent research on this topic appear to be promising, the study was performed at a small scale, and additional research is necessary to replicate results. Additionally, the painting of turbine blades may result in other impacts, such as visual, or inconsistencies with county turbine painting requirements. At this time, the FAA requires turbines (as a whole) to be white or off-white in color.

0105-09

See page C-253 for response.

COMMENT(S)

0105: Emma Clute, continued

RESPONSE(S)

Western Area Power Administration

0105-09

The ESA requires federal agencies to consult with the FWS to ensure that authorizing, funding, or carrying out an action will not jeopardize a listed species or destroy or modify its critical habitat or habitat essential to the conservation of the species. No FWS-designated critical habitat for federally listed species is present in the Project Area. Please see section 3.5.4.3, “Species of Concern,” for a discussion on threatened, endangered, or candidate species under the ESA relative to the Project. No greater sage-grouse or leks (breeding areas) were observed during avian point count surveys and other field surveys conducted in 2019 or 2020 for the Project. Please see section 3.5.4.3, “Species of Concern,” for a discussion on greater sage-grouse and other avian and bat species of concern relative to the Project. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures.

COMMENT(S)

0106: John Davis

Rail Tie Wind Project Virtual Public Hearing Transcript April 28, 2021

01:07:27.540

0106-01

John Davis: Actually, it's John Davis, not Susan. J-O-H-N D-A-V-I-S, and we have property at 244 Elk Crossing Road in Tie Siding, Wyoming. And this proposed Project is directly in our view-scape, and so we oppose it. But there's reasons to oppose it other than view-scape and I haven't heard much from historians in this webcast, but if you drive a little bit farther south on 287 you get to Virginia Dale. And Virginia Dale is the last stagecoach station before you get to Wyoming. And the Wyoming stagecoach station was at Willow Creek, which is directly behind Tie Siding and the that trail, the Overland Trail, named for the, the Ben Holiday Overland Stage Company, was really retracing the path of the Cherokee Trail, and that's why the road that leads to our ranch, Cherokee Park Road—and there was no Cherokee out in that part of the country, it was named because the Cherokee Tribe went west to mine gold or the rest of the miners in the '49—you've heard of the '49ers?—well, that was when the Cherokee went west and made a trail there that later became the Overland Trail. So, there's a lot of history here. You know about the Ames Monument. You probably know about Tie Siding and the Dale Creek trestle site, which is pictured in a lot of restaurants and tourist attractions. But, you know, this is not the right place for a 26,000-acre wind farm. You know, they're only coming here because they can export the energy through the WAPA power lines and the WAPA power lines go on into Colorado and so should this Project. So, unless you have any questions for me, that concludes my comments.

0106-02

01:10:13.230

01:39:19.350

John Davis: Thank you. It's actually John Davis, but Susan and I own property in Tie Siding, Wyoming. And we built it in 2005. It was a log home that's a kind of a kit thing that once it's established, it's what you call a log home. And according to the Albany County Assessor, last year, the value of our property, including the 35 acres that it's on within Fish Creek Ranch, was \$804,000. Yeah, that's a lot of money. It's more than we put into it. But, the last valuation we got from the Albany County Assessor indicates that it's \$157,000 less. And it's solely attributable to the fact that the wind farm proposed here is within our view-scape. So, for them to say that there's no economic consequence here. I've seen it visibly through the Albany County Assessor's Office. They say on the front of the ranch the lots that view where the wind farm will be, you know, are subject to a lower valuation than the ones that are deeper in the ranch that don't look at the wind farm. And it's kind of dismaying to me. I mean, we built in a platted subdivision, you know, you would think that a subdivision within its area ought to control the surrounding areas to be commensurate with it. And this isn't a WAPA concern, it is not a Federal government concern, but it is an Albany County concern. But nobody seems to be concerned, and that's why I bring it up here. So, here I am \$157,000 cheaper than I was a year ago and I asked, you know, whether the the Rail Tie Wind Project is worth that in terms of the entire view-scape. Thank you.

0106-03

01:42:00.000

RESPONSE(S)

Western Area Power Administration

0106-01

Comment and preference noted.

The Willow Spring Station is addressed in EIS section 3.6.5.2, “Methods of Analysis.” It is assessed as an archaeological resource where setting is no longer an important factor to its NRHP eligibility and therefore the Project would not result in an adverse effect on this historic property.

Virginia Dale is discussed in the Cultural Resources Evaluation Technical Report for the Project that is incorporated by reference into the EIS in section 3.6, “Cultural Resources and Native American Concerns.” This report, along with its HPVIA addendum, is available to the public at: <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>.

0106-02

The Virginia Dale Stage Station is located within the APE in Colorado but is outside of the Project's viewshed. As such, the Virginia Dale Stage Station is not exposed to visual impacts from the Project and is not individually named in EIS section 3.6. The Overland Trail, Cherokee Trail, Dale Creek Crossing (the trestle location), Ames Monument NHL, and historic properties at Tie Siding (i.e., Tie Siding Cemetery) are individually named in EIS section 3.6 and discussed in the HPVIA, along with Willow Spring Station. WAPA would identify the agency-preferred alternative in the final EIS, and a record of decision would decide whether to approve the WAPA action being contemplated for the Project in regards to the siting or placement of the Project as analyzed in the EIS.

0106-03

Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0107: Lynn Montoya

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:38:04.170

Lynn Montoya: Can you hear me? Okay, sorry I didn't. But I click right but. My name is Lynn Montoya, L-Y-N-N, and last name Montoya, M-O-N-T-O-Y-A. I am a resident of Albany County and I also am a business owner in the proposed area. Based on the determination of the WAPA Team, considering the draft EIS that there would be significant visual impacts to residents of the Laramie area, visitors to the area, and possible future residents, I can only suggest the WAPA conclude that there should be a no connection determination, thank you.

0107-01

00:38:57.000

RESPONSE(S)

Western Area Power Administration

0107-01

Comment and preference noted. Please see section 1.1, “Western Area Power Administration’s Purpose, Need, and Decision” for information on the scope of WAPA’s decision. See section 3.2.6, “Aesthetics and Visual Resources Conclusion,” for details of WAPA’s conclusion regarding impacts to visual resources.

COMMENT(S)

0108: Maria White

Rail Tie Wind Project Virtual Public Hearing Transcript April 28, 2021

01:13:58.320

Miria White: Okay, my name is Miria White. My first name is spelled M-I-R-I-A, my last name is W-H-I-T-E. So, I would like to speak to you that there are proper places to put wind turbines in even in the County, in Albany County. And there are improper places. This is very clearly an improper place. At the proposed site, I did a research project, where I looked at how many rural residential parcels were located within a 5-mile radius of the Project boundaries and I compared that to other wind projects in both Carbon and Albany County. So projects like Boswell Springs and Two Rivers/Lucky Star are properly placed because they have less than nine residential parcels within a 5-mile radius of those projects. But Rail Tie, at its proposed location, has 183 on the Wyoming side and possibly 150 or more on the Colorado side within a 5-mile radius. So it's been clearly demonstrated by even the wind industry themselves that people and residents don't mix with wind turbines. There's plenty of locations all across Wyoming, all across the western United States that are much, much more appropriate than this particular location, just because it conflicts with so many residents. And a way an illustration of how it's going to affect all of those, those residents, including myself, is the acoustical assessment, the technical report. Now I was extremely upset that the, that Amanda McDonald just casually mentioned during the County Commissioners' meeting that the wrong report was placed into the draft EIS. Now that, how are public, how is the public supposed to comment on the draft EIS when you don't even have the correct report? All right, that is absolutely ridiculous. Somebody should be losing their job over that. And the fact that the documents on the draft EIS website have been updated periodically. One of them was updated as of April 9, so if Amanda McDonald was aware that this was the wrong report, then why hasn't it been corrected during our public hearing period? If anything, I think that this public hearing period should reset when we have all of the accurate and correct information on the draft EIS. How am I supposed to have an expert look at it, when there's a contrary report, a completely different acoustical report, given to Albany County. And apparently, according to a Amanda McDonald, that happens to be the correct one, so I really want you guys to consider that. And also, are you concerned, is WAPA concerned about the Rail Tie Project being able to meet county regulations? Because it certainly doesn't seem like it with the acoustical assessment report, since they're going to break the county regulations with their own report. They prove it in their own report that apparently is the wrong one. Thank you.

01:17:44.910

0108-01

0108-03

0108-02

0108-04

RESPONSE(S)

Western Area Power Administration

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own. *National Survey of Attitudes of Wind Power Project Neighbors* (Hoen et al. 2019) presents findings of a 4-year project to collect data from a broad-based and representative sample of individuals living near wind power projects in the U.S. Results of the study indicate a variety of responses—both positive and negative—from individuals in communities where wind power projects are located. The study found that attitudes about wind projects are negatively correlated with hearing the turbines, perceptions that the turbines fit poorly within the landscape or that they negatively affect property values, and attachment to the local community. The study found attitudes were positively correlated with respondents being compensated, perception that the planning process was fair, and perception that wind power is effective at combating climate change. Notably, the study found that individuals who moved to a home after wind project construction had "significantly more positive attitudes [regarding the wind project] than those who lived in their homes prior to construction."

0108-01

0108-03

0108-02

0108-04

WAPA is using the correct acoustic report for the EIS. The acoustic report developed for the EIS uses the "noisiest" turbine option out of the full range of turbine options under review for the EIS, which is the GE turbine. This is appropriate because the EIS considers a range of turbine options. Conversely, the Albany County permit application is focused on a specific turbine type, so that acoustic report focuses specifically on the V150-4.2 turbine. Both the EIS and the Albany County permit applications are using the correct acoustic reports for their respective purposes.

See page C-257 for response.

See response to comment 0108-03.

COMMENT(S)

0108: Maria White, continued

RESPONSE(S)

Western Area Power Administration

0108-02

WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, “Public Involvement and Scoping,” of the EIS.

COMMENT(S)

0109: Paul Montoya

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:55:07.230

0109-01

Paul Montoya: Thank you, Sarah, this is a Paul Montoya. My name is spelled M-O-N-T-O-Y-A. Paul, Sarah, I had, I represent the Albany County for Smart Energy Development. My question, Sarah, is how can the public get a copy of the video from today's meeting? Okay. My next question is going to be for Mark Wieringa. Mark, thank you for your communication you've had with our group in regard to doing a public meeting. My question is: Has WAPA ever issued a no-connection determination? If so, what was the last time they issued one? I'll keep going with my questions here, I've got more questions. That's why I was kind of hoping we'd have public dialogue in person, rather than through Zoom because Zoom is very controllable this way by you all. My other question for the panel would be: Has a WAPA ever issued a no-connection determination based on a visual impact assessment? If so, when was that and at what Project? My next question would be: How was Tetra selected as a consulting company for this Project? Do they work with WAPA on an ongoing basis, or is this a bid-type process? How are they selected? I also have a question: Does ConnectGen have any determinative input in the EIS decision?

0109-02

And finally, I didn't it—the timetable that was outlined in your presentation didn't really highlight when the determination would be made. I don't know if that's going to be after the EIS becomes a non-draft EIS and then there's the determination at that point, or the determination for a no-connect or connect comes later than that. But I'd like clarification of that too. Those are all my questions. I'll have further comments at tomorrow's session. Thank you.

00:57:42.300

01:10:34.650

Yeah, Paul Montoya representing Albany County for Smart Energy Development. My question would be: why can't panelists answer some of the questions we've submitted while we're waiting for other people to speak? That's all I have. Thank you.

01:10:47.880

RESPONSE(S)

Western Area Power Administration

0109-01

Videos and other public hearing materials are available on WAPA's website: <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>.

0109-02

The interconnection request decision will be made by WAPA after the final EIS has been released to the public and the availability period has occurred. This is currently expected in early 2022.

COMMENT(S)

0110: Richard Dow

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:49:32.190

Richard Dow: My name is Richard Dow. That is spelled R-I-C-H-A-R-D D-O-W. I'm a resident of Albany County. I live approximately 4 or 5 miles north of the proposed Project. And I have previously submitted written comments via email, so I won't repeat all of those now, but I urge WAPA to choose the no-connection alternative. That's the end of my comments. Thank you.

0110-01

00:50:00.450

RESPONSE(S)

Western Area Power Administration

0110-01

Comment and preference noted.

COMMENT(S)

0111: Ruth Sommers

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

01:01:21.900

Ruth Sommers: Thank you, Sarah and thanks to all of you at WAPA today for the opportunity to comment here. My first concern is some with some of the wildlife assumptions that have been made. 85% of the Project has been declared a Wyoming Game and Fish crucial habitat priority area, which is to be protected and management—managed, with the goal of maintaining wildlife populations, particularly moose and big game. There is the moose crucial winter, the deer crucial winter range in the southeast corner. And the whole area has been described as an intact ecological region by The Nature Conservancy, which discourages any kind of wind production here, in contrast, with what the Sierra Club may feel. There are two national wildlife refuges nearby—one within 8 miles, plus the Laramie Plains wetland complex to the east, which are unique to this high, semi-arid desert that provide resting and nesting and breeding sites for migratory birds. But there have been no studies which analyze the migratory patterns of these birds. They need to be completed before decision-makers can weigh the potential effect of them, of these turbines on those migrating birds. It is troublesome that some of the wildlife assumptions and finding of no impact are based on studies that are done in Oklahoma and Oregon. And it's very troublesome that one of those studies deciding the behavior of big game was really an avian and bat study, not a game study. Wyoming has done in studies on pronghorn avoidance—the Dunlap Wind Farm in northern Converse County—but none of those studies were cited. There's extensive sightings of bald and golden eagles, as well as raptors in the wildlife area undertaken for the EIS, but ConnectGen is not proposing to use some of the most-effective methods of deterrence for bird mortality. We could use an EPM that uses the latest technology available in the program similar to Identiflight, demonstrated in Congress County in Wyoming, which decreased eagle mortality by 82%. And I'll address my last concern with another raised hand later. Thank you.

0111-01

0111-02

0111-03

0111-04

01:03:45.360

01:04:28.440

Ruth Sommers Thank you again, Sarah. My name is Ruth, R-U-T-H, Sommers, S-O-M-M-E-R-S, and I am a resident of Albany County, forgot to say that. I would like to reiterate some of the instances on studies that were relied on those that were taken only on the west side of the Project about 10 years ago for Hermosa. That area, for instance, was found to be suitable for turbine bases, but those turbine bases, at that time, were only 7 to 8 feet deep. They're at least twice that depth now. The east and west sides of the Project are not at all the same. The northwest portion is mapped, showing a bedrock of shale and limestone, and the entire east is mapped as having only a Sherman granite bedrock. Most concerning to those of us living around the Project, the entire East side has a much shallower depth-to-groundwater—0 to 10 feet. Much more shallow than the west side. There's not enough information on the east side to make sound decisions on turbine placement, the potential need for blasting, or whether de-watering will be needed. What happens to our shallow aquifers when things are de-watered? Does that water come back immediately, or does it take it a full year to recharge? What environmental protection

0111-05

RESPONSE(S)

Western Area Power Administration

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Additionally, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deter big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, “Cooperating Agencies,” for a complete discussion of cooperating agencies.

0111-01

Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS's *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds.

0111-02

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. The commenter's suggested literature, Smith et al. (2020), was included in section 3.4.5.3, “Proposed Action,” of the draft EIS.

0111-03

See page C-261 for response.

0111-04

See page C-262 for response.

0111-05

COMMENT(S)

0111: Ruth Sommers, continued

RESPONSE(S)

Western Area Power Administration

0111-04

Further analysis was conducted after the publication of the draft EIS. Based on this analysis, WAPA has concluded that the operation of wind turbines would put eagles at risk of fatality from blade collision and would result in significant impacts as compared to the baseline condition. Section 3.5.5, “Issue Statement #3,” has been updated to reflect that the FWS has recommended that ConnectGen (1) follow the FWS Region 6 guidance for minimizing wind energy impacts to golden eagles (FWS 2013, 2021b, and 2021c); (2) develop an Eagle Conservation Plan; and (3) submit an application for an EITP. The applicant is applying Region 6 guidance, is coordinating with FWS on the development of an eagle conservation plan and will apply for an EITP. The applicant is actively working with the FWS on eagle-related concerns associated with the Project and has committed to implementing eagle-specific conservation measures specified in the EIS and those required in the eagle conservation plan are not known at this time; however, the issuance of an EITP must meet the FWS’s preservation standard for bald and golden eagle local area populations. The FWS’s process for issuing a BGEPA EITP is a separate NEPA action outside this EIS. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a BBCS. When developing an Eagle Conservation Plan or BBCS, it is standard practice to include adaptive management measures. ConnectGen would develop and implement the environmental-related plans listed in table 2-7 of the draft EIS, including an Eagle Conservation Plan and a Bird and Bat Conservation Strategy. When developing an Eagle Conservation Plan or Bird and Bat Conservation Strategy, it is standard practice to include adaptive management measures.

COMMENT(S)

0111: Ruth Sommers, continued

0111-05,
continued

measures are in place, should the groundwater wells or underground structures be negatively affected by turbine placement? These are some of the things that we need to have discussion that just needs to take us tell us what environmental protection measures can be in place for our water. And our Counties need to protect us from the same dangers. Thank you very much.

01:06:11.190

RESPONSE(S)

Western Area Power Administration

0111-05

ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project Area—to inform design and construction. This information has been considered for the final EIS and added to WAPA's Project website. The EIS notes the potential for blasting and dewatering, both of which would be likely in multiple turbine locations. ConnectGen would comply with WYDEQ and WYSEO permit requirements related to blasting and dewatering.

COMMENT(S)

0112: Susan Davis

Rail Tie Wind Project Virtual Public Hearing Transcript April 28, 2021

00:42:18.750

Susan Davis: Good afternoon. Can you hear me? Great. My name is Susan Davis, S-U-S-A-N D-A-V-I-S . My home is west of-- Okay, can you? Am I back on? Okay, did you get my name? My name is Susan Davis S-U-S-A-N D-A-V-I-S. My home is west of Tie Siding, and I wish to speak to you today because I am very concerned—extremely concerned—with the lack of regard for the danger of wildfire that this Project will create. 213 homes are within 5 miles, radius, of this industrial site with these 675-foot towers, or even the shorter towers, there is no provision in the draft for fire suppression systems on the turbine nacelles. It's proven that turbines not only attract lightning but create upward lightning during thunderstorms. There is no fire department in our area. It is over 30 miles from some of the industrial site to Laramie, yet homes are within 5 miles of these turbines. On the west side of 287, there's only one road for fire escape. Blockages could happen during construction. These homes are contiguous with the Roosevelt, the forested foothills at the Roosevelt National Forest that leads into there. It is my understanding that in our area, we cannot even get fire insurance any longer. Drought is normal in our area. The forests are filled with beetle-kill timber. It is a critical situation if you think back to last summer. I want to remind you there's only one road out for those of us who are west of Tie Siding. If that is blocked by equipment, by blades, by road construction, we are trapped. Once this Project has built, the natural prairie will be disturbed. Plant life will change; perennial plants that occupy the prairie now, which are more resistant to fire, will be destroyed. In its place will grow the annual invasive cheatgrass, which is extremely flammable. Additionally, cheatgrass is not suitable for wildlife consumption, then it will be the end to the mule deer and the elk herds. But, most importantly, this industrial site is a hugely combustible area that is drought predisposed with the possibility of trapping a number of residents with no way to escape should a fire start. Why would ConnectGen be allowed to intentionally plan such a devastating fire hazard in the area is my question for you. This is not the right site, in my opinion, for an industrial wind facility. I appreciate your consideration of this. I truly am terrified of the possibility of fire in the area. Thank you.

00:45:45.300

0112-01

RESPONSE(S)

Western Area Power Administration

0112-01

Larger, timber-involved fires on the national forest are the fire types that grow to a large size and intensity, not grass and shrub fires. The Rail Tie Wind Project Wildland Fire Background memorandum (SWCA 2021) has been updated to include a discussion about how non-native species, including cheatgrass, influence fire regime. The Rail Tie Wind Project Wildland Fire Background memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and available in the Project administrative record.

COMMENT(S)

0113: Terry Opgenorth

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 28, 2021**

00:46:00.630

Terry Opgenorth: Okay. Well, thank you for allowing me to present. My name is Terry Opgenorth. Spelling of that name is O-P-G-E-N-O-R-T-H. I'm a landowner in the impact zone near the Colorado-Wyoming border, just to the south of that state line. I have two points I'd like to address that I do not believe were adequately addressed in the technical reports prepared by WAPA, by ConnectGen LLC, or the EIS, and then offer a compromise solution that I think may address both of those issues. So the first, related to the biological resources report sections 4.7.2.7 and 5.4.2.3 related to big game. And I won't read all of what I submitted to you in writing, but I do want to quote a couple of things from section 4.7.2.7 which says, "based on feedback provided by WGFD, which is the Wyoming Game Fish Department, during initial agency outright outreach, the Project Area is located outside proposed ungulate migration corridors. And then in 5.4.2.3, also referencing big game migration routes, it says, again, the same thing that that you know that there are not migration corridors in play. This is factually incorrect and I provided photographs of elk herds in the area on three different occasions dating back to 2015, 2018, and then, most recently April 5 of this past year. And this is a substantial herd which I've seen many times over the years as I traveled Cherokee Park Road in numbers from anywhere from 30 to 50 to 200 to 300 at a time. And it travels from West of Cherokee Park Road to east of 287 and in fact I've seen dead animals, the result of vehicle collisions on 287, so they clearly migrate across that corridor, and based on the dates of my photographs, which are in the winter months and early spring, the elk are using this as their winter range and as their birthing ground, two critical times for that elk herd population. And, as I point out in my written notes, I've only seen the elk herd south of the transmission

0113-01

line. And so I'll come back to that in just a moment. The other point I'd like to raise is that Diamond Peak is nowhere mentioned in the visual impact, and for residents of the Boulder Ridge area, and for anybody driving on Cherokee Park Road, Diamond Peak is what you see going south. And the wind farm, while it would be to the east of Cherokee Park Road, would definitely be within the visual aspect of blocking

0113-02

Diamond Peak. So what I'm suggesting is to reduce the size of the wind farm in its southern section below the transmission line corridor.

0113-03

00:49:20.130

RESPONSE(S)

Western Area Power Administration

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federal or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. Additionally, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deter big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS as cooperating agencies. See section 1.4, "Cooperating Agencies," for a complete discussion of cooperating agencies.

0113-01

Sensitive viewer locations were evaluated and determined based on the types of users and groups most commonly encountered in the analysis area and are represented by either residences, recreation areas, or travelers. Through the public scoping and agency coordination process, KOPs were determined. Although Diamond Peak was not identified as a KOP for visual simulation, Diamond Peak was included within the 30-mile viewshed analysis area and KOP 4 (Cherokee Park Road and Fish Creek Road) provides a representative view of the Project analysis of potential impacts relative to views from the southwest. Impact characteristics for that area have been disclosed through the analysis process.

0113-02

0113-03 Comment and preference noted.

COMMENT(S)

0114: Brett Wadsworth

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:36:23.340

Brett Wadsworth: Hello, my name is Brett Wadsworth. I'm a resident of Albany County, living up in the Vedauwoo Area and it is a windy country. I know why they would like to put windmills up there. I was not able to read all the way through the environmental impact state report. Three-hundred-fifty-something pages was too much for me to get through last night when I finally got to it. But a couple of comments in there that caught my attention, in the early section that I was reading, mentioned, since the construction that provides for potential spread of invasive species would degrade aquatic habitat. These effects would dissipate shortly after construction activities cease. I'm bit skeptical about that.

0114-01

From a limited amount I know about invasive species, their impacts and their presence don't typically just dissipate. So, I'm a bit concerned about that inclusion and that particular statement. Further on, it says Project construction and operations activities and vehicle traffic would disturb habitat for small game until the decommissioning of the Project and not expected to affect populations or communities of a species. Maybe? But for the life of a Project that's going to last 30 years, and if it's going to impact even small game for that period of time, I can't connect the dots on how that would not impact populations or communities of a species, at least in that local area. Thank you for the opportunity to comment.

0114-02

00:38:00.750

01:44:45.720

Brett Wadsworth: Thank you. Brett Wadsworth, B-R-E-T-T, last name W-A-D-S-W-O-R-T-H. I could not let that last comment, by Mr. Frederick, to go stand alone. He is not alone on this either. This country is pretty special. The comments from the folks earlier who talked about how sensitive this environment is? I feel their pain, exactly. I have a house in the Vedauwoo area. After construction, I regret the fact that the prairie grass does not wish to grow back and the fact that this decomposed granite in this area, with the winds, anything small and light and fine will not catch and take hold and return for eons, I'm afraid. Except, of course, for cheatgrass and the things that we don't want, the invasive species that seem to grow up anywhere. Something of this magnitude, an industrial power facility, cannot just be planted in an area like this without there being untold impacts to the environment, to the views, to property values, to the large game, to the small game, to the avians, to the water. Everything about this country will be forever changed, at least as far as I'm concerned. The life cycle of this facility, 30-some years, that's going to outlast me, I expect, and the footprint from that, because of the sensitivity of terrain and the environment, appear even when those things are ripped out of the ground and deposited in landfills in Casper or wherever it may be. This country will continue to suffer the damage and the repercussions for well outside the life spans of any of us sitting here in this meeting, right now. All of us will be well gone and our children will be gone too, before the effects of this thing are past. And to truly know what's going to be the life cycle costs on the 1,900 raptors, as the gentleman earlier commented, that are killed annually at a similar wind farm in California, and all the thousands upon thousands of their

0114-03

RESPONSE(S)

Western Area Power Administration

0114-01

We believe the reader is referring to section 3.4.5.3, "Proposed Action, Issue Statement #3," in the draft EIS where it is written that sedimentation, turbidity, and salinity will dissipate after construction activities cease.

0114-02

While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, "Operations and Maintenance Activities." For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation. Impacts from construction and O&M of the Project are not expected to result in population- or community-level declines given the propensity for small mammal species to repopulate disturbed areas, their high reproductive rates, and the relatively small amount of disturbance compared to available habitat.

COMMENT(S)

0114: Brett Wadsworth, continued

0114-03,
continued

progeny, which will never be born, or the ones that are born that will also be killed, is mind boggling. The footprint that this has, and the impact it will have for all of us, and for what is a very beautiful, special, spectacular piece of country here in Wyoming. And I grieve for what is going to happen, should this be approved, and I thank you very much for the opportunity.

01:47:30.510

RESPONSE(S)

Western Area Power Administration

0114-03 Comment and preference noted.

COMMENT(S)

0115: Christine Kratt

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:49:12.240

Christine Kratt: Hi this is Christine Kratt. C-H-R-I-S-T-I-N-E K-R-A-T-T. Thanks so much for taking my comment today. have been living in the Colorado-Wyoming area for the last 25 years. I'm a veterinarian and I'm very concerned about the wildlife. I know that these turbines, and I've studied it quite a bit, biologists definitely there's a lot of research papers out there, the harm they have these turbines to our beautiful birds of prey which are federally protected. These birds of prey cannot reproduce at the rate that they're being killed by the spinning turbines. For those of you who haven't looked at this carefully enough, these are birds that live in in a 3D-environment and, with that, they're having social interactions, they're looking for their source of food below, they're mating, they're raising their young, teaching them how to fly, and when turbines are spinning like that, it literally is killing them just by chopping them in half, breaking their wings. We are very familiar with the fact that, you know, companies like ConnectGen, you know, try to pick up the dead birds, so no one will know that they're there. And it's really a shame that we're not more concerned about that. Furthermore, as you all know, this pathway through the basin is a migratory pathway for a lot of the elk and pronghorn and other animals that rely on it. And the disruption of roads, the disruption of—these wind turbines also create an infrasound which is very difficult on these animals. It alters their ability to perceive their environment and have their normal social behaviors. I think that's a real shame these animals got to find another place to live. I've been driving around Wyoming, I'm familiar with the area, there are plenty of other alternatives and, you know, there's large branches that are set aside from these migratory pathways. And I just wish ConnectGen would look for an alternate location. Yes, there are transmission lines—and that's super convenient for you to save money and so forth, but when it comes down to this, is it really worth it, is it really worth the business? I'd studied also turbine energy generation, and it is the most inefficient way of accessing this energy source. Even oil wells are easier on the environment than something like turbines and the audacity of wanting to build these large turbines that are only meant, really, for the oceans is a real shame that you would even think about putting them up in the Larimer Basin, so. Okay, thank you so much.

00:52:39.720

01:14:09.390

Christine Kratt: Hi, thanks again so much. This is Christine Kratt, Christine spelled C-H-R-I-S-T-I-N-E, last name's Kratt, K-R-A-T-T. I already spoke about the wildlife because I am a doctor of veterinary medicine, but what I'd like to really speak now and to kind of build up some of the comments I've heard since I last spoke is that it seems to me a lot of this is about convenience, and making money, and money going back to the county. Well actually, that's really not true. What's going to happen to us as property owners, our property values are going to significantly drop. I can't tell you how many people I've spoken to who would not at all buy a property near turbines. There are, in fact, health risks. A lot of big companies like ConnectGen want to kind of hide that under the rug. But truly, even though, in many

0115-01

0115-02

0115-03

0115-04

0115-05

RESPONSE(S)

Western Area Power Administration

0115-01

Comment noted. The impacts to raptor species are considered in section 3.5, "Avian and Bat Species."

0115-02

See page C-268 for response.

0115-03

Comment noted.

0115-04

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0115: Christine Kratt, continued

RESPONSE(S)

Western Area Power Administration

0115-02

We have acknowledged and considered reports of big game occurrence in the Project Area received through the scoping and EIS comment process. Additional research regarding big game species, made available since the publication of the draft EIS, has been incorporated where appropriate. With respect to the federal or state-designated ranges or migration corridors, the spatial analysis presented in the draft EIS indicates that the only big game species with WYGFD-mapped crucial winter range in the analysis area is mule deer (see figure 3-4). Although a variety of big game species occur in the Project Area, the WYGFD has not mapped big game migration corridors or other crucial big game ranges in the Project Area. Big game habitat, including WYGFD-mapped crucial winter range, parturition areas, seasonal ranges, and migration corridors, were reviewed to determine if Project infrastructure (siting corridors and access roads) or Project-related activities would result in a decrease in available habitat, conflict with migration corridors, or deterrence of big game from using the area. State and Federal resource specialists were provided an opportunity to review and comment on the draft EIS, including the analysis of big game wildlife effects, as cooperating agencies. The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. As summarized in section 3.4.5.3, "Proposed Action," past research and observations have demonstrated both avoidance and non-avoidance of operating energy infrastructure. It is therefore unclear if noises, including infrasound, during operations could lead to avoidance of the Project Area by big and small game. While many impacts would be confined to the construction phase of the Project, some of these activities and the resulting impacts would be intermittent and localized throughout the life of the Project, as described in section 2.2.4, "Operations and Maintenance Activities." For example, once the Project is in the operational phase, vehicle traffic and noise would be substantially reduced, as would the associated risk of vehicle collision and noise disturbance for wildlife, although intermittent impacts could occur when operations personnel are driving on-site. Decommissioning activities would have impacts similar to those for the construction phase but would end with final reclamation.

COMMENT(S)

0115: Christine Kratt, continued

0115-05,
continued

cases, they keep saying that we cannot hear these turbines, there's the infrasound and that actually has damaging consequences to every cell in our body—again I'm a doctor, and I know these consequences. And a lot of times they're hidden, they can't be explained. These are microscopic changes that our cells actually react to these kinds of sound waves. Another thing about this Project, too, is that there's this—the spinning of the turbines. What happens is our brains actually key in on that movement and it's very, very damaging to our brains. Just from a psychological standpoint, a lot of people get vitiligo, they get nausea, and other more impactful health consequences. So I'd really like for doctors to opine on this

0115-06

situation. And, again, there are alternatives. I'm not just asking a question here I'm actually saying that this Project should be moved to safer alternatives away from people, away from animals, distant from property owners, where they could lose a lot of what they've invested over the years in buying these properties. You know, we can't get that back. And I just think it's disgusting that a company, at our

0115-07

expense, would do this for a little money. We're actually being hurt, those of us in Albany County are being hurt. You can give as much money as you want to schools. We could do that deliberately too. What we really need to do is save our personal investments as well. This is really a shame. We're not going to be able to sell our properties like we would have in the past. They're going to plummet, our values are going to plummet. Thanks so much for considering these comments. Please look for alternative solutions. Find far away ranches. Thank you.

01:17:25.080

RESPONSE(S)

Western Area Power Administration

0115-05

Short-term noise and infrasound impacts may be experienced during the construction phase of the Project but would be within acceptable local, state, and federal standards. As discussed in section 3.10.5.3, “Proposed Action, Issue Statement #6”: “The nearest NSA is located 1,880 feet from WTG locations and is a participating landowner.” The maximum noise level at the nearest sensitive receptor during the noisiest stage of construction would be approximately 66.5 dBA, similar to standing 3 feet from a vacuum cleaner. Vibrational/infrasound associated with the construction phase would not impact any nearby property owners. If blasting is necessary, a plan would be provided in compliance with any state or local regulations. Blasting would be limited to between sunrise and sunset if it is necessary during construction.

0115-06

Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own. *National Survey of Attitudes of Wind Power Project Neighbors* (Hoen et al. 2019) presents findings of a 4-year project to collect data from a broad-based and representative sample of individuals living near wind power projects in the U.S. Results of the study indicate a variety of responses—both positive and negative—from individuals in communities where wind power projects are located. The study found that attitudes about wind projects are negatively correlated with hearing the turbines, perceptions that the turbines fit poorly within the landscape or that they negatively affect property values, and attachment to the local community. The study found attitudes were positively correlated with respondents being compensated, perception that the planning process was fair, and perception that wind power is effective at combating climate change. Notably, the study found that individuals who moved to a home after wind project construction had “significantly more positive attitudes [regarding the wind project] than those who lived in their homes prior to construction.”

0115-07

See response to comment 0115-04.

COMMENT(S)

0116: Even Brande

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:55:54.900

Even Brande: I apologize, my microphone doesn't seem to be working. Can you hear me now? apologize Even Brande, E-V-E-N B-R-A-N-D-E. I'm a long-term tech entrepreneur here in Laramie and I've been watching this Project for a while. I wanted to second Paul Montoya's suggestion about converting to solar. According to a book I recently read by Bill Gates on climate change, solar is about five to 10 times more effective when measured in watts generated per square foot or square meter than wind. Wind is—next to firewood—wind is the least effective of all the power sources we have available to us today.

0116-01

The second question, and that I haven't seen and I haven't read all of the environmental impact studies about all the concrete that will go in the ground. I'm curious to know how much, how many tons of concrete will be used for this Project? The amount of CO2 released for every ton of cement produced is about a ton of CO2. So, for every ton of cement put on the ground, we're releasing a ton of CO2 into the atmosphere, and I would like to learn a little bit more about that. So, thank you for the opportunity to comment, and I appreciate you allowing us to be involved.

0116-02

00:57:20.940

RESPONSE(S)

Western Area Power Administration

As described in the Executive Summary, section ES 4, “Western Area Power Administration’s Proposed Federal Action,” and section ES 4.4, “Proposed Federal Action Alternative Considerations,” WAPA’s role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency’s Tariff and the Federal Power Act. WAPA’s decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen’s Project is considered a connected action to WAPA’s Federal decision of granting an interconnection to the agency’s transmission system, WAPA lacks the authority to site ConnectGen’s Project at a different location, to change the Project’s generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA’s EIS review of the effects of the Project, as a connected action, meets that obligation.

0116-01

Concrete use was included in the estimated Project construction emissions (see table 3-8), including using a concrete batch plant on-site that would have the capacity to produce approximately 1,500 yards of concrete daily. The plant would require an air permit from WYDEQ Air Quality Division before being located at the Project.

0116-02

COMMENT(S)

0117: Grant Lindstrom

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

01:12:25.140

Grant Lindstrom: Hello, my name is Grant Lindstrom, G-R-A-N-T L-I-N-D-S-T-R-O-M. And I just, I'm not sure, just, I haven't read the paper on it and stuff, but the one thing I'm concerned a little bit about is the noise of them, I assume, as they're bigger, they're more noisy. That seems like that goes with, as you make things bigger, there's more noise. And that probably isn't a big issue for a lot of people, but my property is directly adjacent to this and, at least, the way the last map I saw, there was one of them that was as close as you get it to my property line. So I, it seems to me, I don't know if that's been looked at. I would appreciate if they gave a little more buffer to non-adjointing landowners. It seems to me they went to the bare minimum they could go to. If they wanted to be good neighbors, it seems to me, should give you more a half a mile. You got enough property to give everybody that's non-adjointing a half-a-mile buffer. It makes it a lot nicer. Thanks, that's all I have to say.

01:13:28.110

0117-01

RESPONSE(S)

Western Area Power Administration

Larger turbines emit slightly less sound than smaller turbines. This is partially because the blades of the larger turbines rotate more slowly than those of smaller turbines. The acoustic report for the draft EIS modeled the "noisiest" turbine option out of the full range of turbine options being considered by the applicant. This "noisiest" turbine is, in fact, also the smallest turbine model out of the options considered.

0117-01

COMMENT(S)

0118: John Davis

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:44:52.980

John Davis: Well, thank you. It's pretty easy. It's J-O-H-N, first name, D-A-V-I-S for the last name and I'm glad to have an audience with you. We bought and built in Wyoming in 2005, and we're in Tie Siding at 244 Elk Crossing Road, Tie Siding, Wyoming, although I am an Indiana resident most of the year, but as we became acclimated to the area, as a history buff, I kind of became immersed in the history of the area and the road that leads to our ranch, to Fish Creek Ranch Preserve, is Cherokee Park Road. And you might say that, you know, this isn't Cherokee country, that this isn't a tribe that's indigenous to the area. And that's true. But the Cherokee Tribe, after they've been displaced from Florida, took up residence in Georgia and then, when gold was discovered, out at Sutter's Fort 1849—the 49ers—they made their way west on a trail that became known as the Cherokee Trail. This isn't the same Cherokee Trail that is the Trail of Tears, but this is the trail that became the Overland Trail that leads up to what is now a restaurant, the Cattlemens' or Cavalrymen's, and it was the overland travel for Ben Holidays' Overland Stage route and so there's all kinds of history throughout this impact area that that I don't see anybody defending or advocating on behalf of. The Ames Monument should have its own advocates, but the trail that became Highway 287, formerly the Overland Trail and then before that the Cherokee Trail, these are all things that need to be preserved, or at least acknowledged, and I don't see that happening in this process. So, you don't need somebody from Indiana to tell you how to do your stuff out there, but at the same time, facts are facts, and history is history, and I implore you to preserve it. Thank you.

0118-01

00:47:40.920

01:31:39.300

John Davis: Okay, thank you. And I'm talking about the property values here. My wife is coaching me here. I am John Davis, J-O-H-N D-A-V-I-S. And to the extent that our property values have been decreased by the prospect of the wind farm is really not arguable. Our value went down from \$804,000 to an amount \$157,000 less than that. And this isn't something I advocated. This isn't, you know, someone that I hired to come in and try to get a lower number for. This is what the county assessor sent me. And Grant Showacre won't say, and he cannot say, that this is because of the wind farm. There are obviously other factors in his world, but in my world, there are not. We look right into the viewscape of this. And so, when people say there's no effect on value, here's \$157,000 diminution in value on one 35-acre tract. And I don't know how else you can configure this but to say that that's the result of this. So, I don't want anybody to think that there is no effect on value here. They may want to make you think there isn't, but there is, and I've got living proof to my benefit here. My taxes will actually be less because of this, but \$157,000 off of \$804,000 is precisely where I find myself, thank you.

0118-02

01:33:47.130

RESPONSE(S)

Western Area Power Administration

The Cherokee Trail and the Overland Trail are addressed in EIS sections 3.6.5.1, "Impact Indicators" (table 3-20). and 3.6.5.2, "Methods of Analysis" (table 3-21), and discussed in the HPVIA for the Project, available to the public at <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>. Segments of both of these historic properties that contribute to the NRHP eligibility of each trail might be located within the Project viewshed and APE). The EIS finds that strong visual impacts from the Project could occur at such trail segments within the APE. Confirmed intact portions of the Overland Trail are previously documented in the APE. For the Cherokee Trail, this finding of effect assumes a sufficiently intact segment could be identified, as this site currently lacks field verification in the APE. The PA specifies further identification efforts and assessment of effects required for historic properties such as the Cherokee Trail and Overland Trail to plan and implement the avoidance, minimization, or mitigation of adverse effects from the Project. EIS section 3.6.5.3, "Proposed Action," states that avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. In this manner, historic preservation measures would be applied for historic properties in the APE, including the Cherokee Trail and Overland Trail. EIS section 3.2, "Aesthetics and Visual Resources," considers potential visual impacts of the Project on the U.S. 287 corridor.

0118-01

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0118-02

COMMENT(S)

0119: Karen Schertz

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:58:11.730

Karen Schertz: My name is Karen Schertz, K-A-R-E-N S-C-H-E-R-T-Z. My husband and I have lived in the Hidden Hills area of Albany County just above the border, and what we have observed over the years, since 1994, is that this land is like tundra. It is so fragile that once disturbed, it will not come back. It opens itself up to bring in cheatgrass and other noxious weeds, and it is irreplaceable. It just never comes back the same. We have done some geothermal and then we try to re-seed afterwards, with a special mix from the Extension Service. It has not come back the same as it was. And so they're putting in 60 miles of road and all the destruction from the wind turbine bases. I just don't see that this area will be the same after this. Thank you for the time.

0119-01

00:59:13.650

01:10:14.160

Karen Schertz: My name is Karen Schertz and I'd like to talk again. It's K-A-R-E-N S-C-H-E-R-T-Z. The thing that occurred to me today is that we are not against renewable energy and the state, we actually support it. But the question I have is, I understand the need to be near the towers. What is the cost to move it to a better location and another part of the county, which it would still benefit the county, and the cost of that move may definitely be worth the cost to save what is so special about the gateway into Wyoming and the wildlife and the fragileness of this valley. And I think that that is a question I feel needs to be answered. What are the other alternatives for this in Albany County? We know the state needs the money. We know the local schools need the money, but there has to be other solutions to this. That's my question. Thank you.

0119-02

01:11:15.720

01:33:47.130

Karen Schertz: My name is Karen Schertz, K-A-R-E-N S-C-H-E-R-T-Z. I am not a Realtor, but I am aware of the fact that Realtors are losing business, particularly the honest ones that are telling about the perspective wind turbines, and people are walking away. I suggest that a study or a survey be made of the local Realtors as to whether this is really happening and that how this is reflecting on our values. And that's what I have to say. Thank you.

0119-03

01:36:04.590

RESPONSE(S)

Western Area Power Administration

0119-01

As described in section 3.14.6, "Vegetation Conclusion," reclamation is expected to be successful in restoring native vegetation cover based on the 37 primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan, and other relevant EPMS, detailed in section 2.2.6, "Environmental Protection Measures."

0119-02

As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

0119-03

Section 3.12, "Social and Economic Resources (including environmental justice)," of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0120: Kirk Stone

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

01:00:31.890

Kirk Stone: Okay, this is Kirk Stone. Can you hear me? My spelling is K-I-R-K S-T-O-N-E and I'm a property owner up in the Vedauwoo area and I've only just gotten time to get on this meeting so I'm not sure what people have commented, so far. I would second the statements by the last speaker about the fragility of this land in this area. And some of my greater concerns are for the wildlife in the area. There are very large elk herds and antelope herds that frequent this area and, as well as the predatory birds. I've seen people speak on other meetings about, you know, all these don't kill birds, well they don't kill swallows, but they do kill predatory birds. I'm a professional helicopter pilot and I've actually done wildlife research on wind farms and spoken directly with the wildlife managers that are doing the counts. And I flew one in California that was smaller than the acreage of this one, and they were killing in the neighborhood of 1,900 raptors a year. So, you know, we have a significant hawk breeding ground in this part of the state and the fledgling birds, when they make their first migration, they go right through this corridor. And that's just going to absolutely decimate that species of hawk, so I think we need to look very seriously at how we're going to affect this area and be diligent in it because this is a very permanent damage across the board. Thank you for your time and I'll look forward to hearing more. Thank you.

01:02:13.650

0120-01

0120-02

RESPONSE(S)

Western Area Power Administration

0120-01

As described in section 3.7.6, "Geology, Soil, and Mineral Resources Conclusion," the Project is in areas with soils appropriate for construction. As described in section 3.14.6, "Vegetation Conclusion," reclamation is expected to be successful in restoring native vegetation cover based on 37 the primary vegetation types in the analysis area and through the implementation of best practices such as the Reclamation Plan, Weed Management Plan and other relevant EPMs, detailed in section 2.2.6, "Environmental Protection Measures."

0120-02

Comment and preference noted. Effects of the Project on big game were analyzed in section 3.4, "Aquatic and Terrestrial Wildlife and Special-Status Species," and effects of the Project on hawks were analyzed in section 3.5, "Avian and Bat Species."

COMMENT(S)

0121: Leland Schertz

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

01:54:37.980

Leland Schertz: Hi, this is Leland Schertz, Karen's husband. Name is L-E-L-A-N-D S-C-H-E-R-T-Z. And I have one simple question: If the demand for all this wind turbine energy is such an in-demand right now, why is it that every time you go from here to Cheyenne, at the new Project at Round Top, there's a percentage of the windmills that are not running? If there's such a demand for it, how come they aren't running at full speed? Or if they are running, they're running so slow, that you can barely see a move. Thanks for your time.

01:55:18.480

0121-01

RESPONSE(S)

Western Area Power Administration

0121-01

The commenter may be referring to the Roundhouse Wind Energy Project. WAPA is not involved with that project or familiar with its operations parameters; however, wind turbines may spin slowly or be periodically curtailed for various reasons, including during certain environmental or meteorological conditions, and for performance of routine operations and maintenance.

COMMENT(S)

0122: Peter Bishop

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:34:10.260

Peter Bishop: Hi. Thank you. So, my name is Peter Bishop. I am a Laramie resident and I have lived in the Laramie community for about 11 years. And my biggest question is concerning the future of the economy, specific to Albany County, with such a development. I know we've been focusing quite a bit on the, you know, the impact on wildlife, the impact on the viewshed. And I guess it is in regards to viewshed. My curiosity—and I'm kind of new to this process, just I heard it, so I decided to show up to this meeting—is, you know, Albany County is one of the few counties that has been successful at growing organically its business community in relation to other counties because we have not traditionally had a lot of natural resources here, which has allowed us to grow a robust outdoor recreation economy that I know, within my own circles and business circles, there is a lot of people who are thinking about starting businesses in that area and are now very worried because, without having our unique access to wildlife and our viewshed, there's a real possibility that there will be a kind of loss of young people, which we already struggle with in this county, because the one reason that we live here, which is our access outdoor recreation and whatnot, will be directly affected, if not threatened. And so I'm curious, within the EIS process, to what degree has that been addressed and do you have a figure as to what the potential economic impact would be? And I know that might fall into the open-ended question, so you can't answer that, I get it, but I just want—I'm just curious about that, and I appreciate your time, and thank you for letting me speak.

0122-01

00:35:48.510

00:53:12.690

Peter Bishop: Thank you so much for let me speak. My name is Peter Bishop, P-E-T-E-R, Bishop, B-I-S-H-O-P. I'm also—following off the previous commenter—I'm also very curious as to why this Project is—I understand the argument that's close to the transmission line going towards Craig, but I don't understand, out of all the real estate that we have obviously in Albany County and throughout the state, why this is such an urgent, such an urgent need for this Project. Also considering that there isn't exactly a market for this energy right now, which it sounds like in the EIS presentation that, that is a very large kind of argument as to why this Project is being developed. And so as a Laramie and Albany County resident, taxpayer, I am extremely concerned, and I would appreciate some information on this because right now, I don't understand how this is in the interest of Albany County. We're being asked to give up something that is irreversible, something that we will never get back for the sake of helping an out-of-state energy company that has already invested in oil, so it's not that green, make a little bit extra money by connecting the transmission line at the expense of our way of life, and at the expense of what we hold dear, and at the expense of what makes Albany County Albany County. That's all my time, and I appreciate you taking my call.

0122-02

00:54:35.940

RESPONSE(S)

Western Area Power Administration

0122-01

The EIS process addressed both outdoor recreation and economic impacts. Effects of the Project on outdoor recreation are analyzed in section 3.11, "Recreation Resources," and economic impacts of the Project are provided in section 3.12, "Social and Economic Resources (including environmental justice)."

0122-02

As described in the Executive Summary, section ES 4, "Western Area Power Administration's Proposed Federal Action," and section ES 4.4, "Proposed Federal Action Alternative Considerations," WAPA's role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency's Tariff and the Federal Power Act. WAPA's decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA-managed transmission system. Thus, although ConnectGen's Project is considered a connected action to WAPA's Federal decision of granting an interconnection to its transmission system, WAPA lacks the authority to site ConnectGen's Project at a different location, to change the Project's generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA's EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0123: Paul Montoya

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

00:38:15.750

Paul Montoya: Thank you very much. My name is Paul Montoya. I'm a resident of Albany County and represent Albany County for Smart Energy Development. David Fetter, the senior project manager at SWCA, gave a good report a little while ago, on the draft EIS that analyzed 15 different resources. He noted that significant impact is shown for aesthetics and visual resources. The other 14 resources, he said, would not experience significant impacts. For the visual resources portion of this study, he noted the key observation points were created. At a maximum turbine height, visual impact was shown to have a moderate to strong impact at 76% of the key observation points. Even at minimum turbine height, visual impact was shown to have moderate to strong impact at 54% of the key observation point locations. This is a significant impact at the majority of the key observation points in the study. It's my understanding that one of the roles of the Western Power Administration has in completing their EIS study is to work with ConnectGen to mitigate areas of the draft EIS that have significant impact. Now to everybody involved, it would seem almost impossible for ConnectGen to mitigate the visual impact that this large number of turbines would have on this large visual impact area and the visual impact on national monuments like Ames Monument. However, we at Albany County for Smart Energy Development have, can provide a solution that would allow ConnectGen to complete their energy Project, for WAPA to accomplish their goal of having ConnectGen connect to their power grid, and tremendously reduce the visual impact. ConnectGen, based in Houston, Texas, is a young company. According to their website, they have three wind generation projects and six solar projects in the works. All but two of the solar projects are located in a latitude north of Albany County with less sun than Albany County. It would seem that all parties would be happy if ConnectGen were to convert the wind generation Project to a solar generation project, utilizing 8,000 acres, rather than 26,000 acres, to generate the 500 megawatts to connect to the WAPA grid. Residents of Albany County would not have to put up with the visual impact, blinking lights, noise, ice throw, and many other conditions that a wind generation facility would create. In conclusion, we recommend that ConnectGen convert this Project to solar to eliminate the only major concern that the WAPA team has identified. If ConnectGen refuses convert the Project, we would recommend a no-connection decision. Our written report will be filed as an official comment. Thank you for your time.

0123-01

00:41:12.060

01:47:49.050

Paul Montoya: Thank you, Sarah. I just wanted to take a moment to maybe comment on—I think Fred Ames was a little disturbed by the fact that more people were commenting about Ames Monument, which is directly tied to his family. And I appreciate him calling in. I think a lot of the reason that people have not taken part in this—and I know Mr. Wieringa knows that there's a large outcry, because he was at the original scoping meeting about this Project. But I think a lot of people may not be participating in public meeting because of two reasons. I think one is that there's not a public meeting. And I understand

RESPONSE(S)

Western Area Power Administration

0123-01

As described in the Executive Summary, section ES 4, “Western Area Power Administration’s Proposed Federal Action,” and section ES 4.4, “Proposed Federal Action Alternative Considerations,” WAPA’s role is to consider the interconnection agreement request submitted by ConnectGen in accordance with the agency’s Tariff and the Federal Power Act. WAPA’s decision is limited to approving the interconnection request or denying the interconnection request. Any WAPA decision to deny the interconnection request would not preclude the Project from being constructed and connected to a non-WAPA–managed transmission system. Thus, although ConnectGen’s Project is considered a connected action to WAPA’s Federal decision of granting an interconnection to its transmission system, WAPA lacks the authority to site ConnectGen’s Project at a different location, to change the Project’s generation technology (e.g., wind vs. solar), to direct the location of particular turbines, or to increase or decrease the number of turbines. WAPA is responsible for evaluating the potential effects of the proposed Project. WAPA’s EIS review of the effects of the Project, as a connected action, meets that obligation.

COMMENT(S)

0123: Paul Montoya, continued

your position for not holding a public meeting, a live public meeting. And I think some people are discouraged by that. I think the other one is the question that was addressed yesterday when I asked has WAPA ever denied an interconnection request, and the answer was the WAPA. has not, to our knowledge, denied an interconnection request at the environmental stage. I think a lot of people feel that maybe the environmental stage of this Project is maybe just for show, and basically to demonstrate that you've done your due diligence to the public, but really has no real teeth. And I think a lot of people are disappointed by that. I do appreciate all you take, all you folks taking the time to listen to the comments and I know it's gonna be pretty boring just sitting there waiting 'till 7:30 to hit, but I do appreciate that you're taking the time to listen. I hope it has some impact. I'd love for this Project be the first to be denied a connection based on the findings of your environmental study, but I think a lot of people aren't really holding a lot of hope. So thank you very much for your time tonight.

01:49:50.280

RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0124: Susan Davis

**Rail Tie Wind Project
Virtual Public Hearing Transcript April 29, 2021**

01:04:12.330

0124-01 Susan Davis: Good evening, this is Susan Davis. S-U-S-A-N D-A-V-I-S. Our home is 224 Elk Crossing in Tie Siding and I wish to bring to your attention, I disagree with the findings that were reported in the draft proposed for this Project because I do believe that this so severely harm our large animal, wild, wildlife in the area and it will certainly, as has been said already this evening, ruin our prairie lands. Turbines of this height have not been tested in areas like this, as mentioned before. They were originally designed for oceans. This company does not have vast experience in building these. Why are we letting them use Wyoming as a testing ground? I simply do not understand that. And then to send the power all to other states. I think this is ridiculous. The destruction that will happen to the perennials that make our prairie a prairie will not come back. It will instead be the annual cheatgrass, which is extremely flammable. This will severely impact our elk, our mule deer, and pronghorn and those are migratory paths, just like it is for the raptors. The roads will have an impact and will cause an impediment to many of the smaller animals. The water quality—nothing's been tested of what's going to happen with the bases of these huge towers dug down in our shallow aquifer. And the water sources then for not only the wildlife, but the people who live in these areas. There's been no studies. And this is truly inadequate preparation for an operation such as this. And lastly, the fire danger, as I've shared with you before. This area backs right up to the Roosevelt National Forest. The Roosevelt National Forest is a tinderbox encompassing the beetle kill that is prevalent throughout the whole area—so we have dry, dead wood, we have a drought-prevalent area, and the lightning that is drawn to these towers and then that shoots down from these towers is such a danger and there's no provision for the safety of the area from ConnectGen on this. They've ignored it. I appreciate you considering these points. Thank you for your time.

0124-02

0124-03

0123-04

0124-05

0124-06

01:07:23.280

RESPONSE(S)

Western Area Power Administration

0124-01 Comment noted. The impacts to wildlife are considered in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species,” and section 3.5, “Avian and Bat Species.”

0124-02 Comment noted.

0124-03 Comment noted. The impacts to vegetation are considered in section 3.14, “Vegetation.”

0124-04 Comment noted. The impacts to terrestrial wildlife are considered in section 3.4, “Aquatic and Terrestrial Wildlife and Special-Status Species.”

0124-05 ConnectGen has conducted additional geotechnical studies (Terracon 2019)—specifically of the eastern portion of the Project area—to inform design and construction. This information has been considered for the final EIS and added to WAPA’s Project website. ConnectGen would comply with WYDEQ and WYSEO permit requirements related to aquifer interaction and groundwater use.

0124-06 Comment noted. Wildfire risks are considered in section 3.16, “Wildland Fire.”

COMMENT(S)

0125: John Kefalas, Board of Commissioners of Larimer County, Colorado

LARIMER COUNTY | BOARD OF COUNTY COMMISSIONERS

P.O. Box 1190, Fort Collins, Colorado 80522-1190, 970.498.7010, larimer.org

May 25, 2021

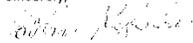
Mark Wieringa
Western Area Power Administration
Headquarters Office A9402
PO Box 281213
Lakewood, CO 80228

RE: Comments on EIS for Rail Tie Wind Project

Dear Mr. Wieringa:

Attached please find comments from the Larimer County Environmental and Science Advisory Board relating to the Rail Tie Wind Project. Albany County, Wyoming, and Larimer County, Colorado share an extensive border, including the area of this Project. As a result, the Project will impact Larimer County residents. Therefore, we ask that you please carefully consider the attached comments, as well as any other comments submitted from residents of Larimer County.

Sincerely,



John Kefalas
Chair of the Board of Commissioners of Larimer County, Colorado



RESPONSE(S)

Western Area Power Administration

COMMENT(S)

0125: John Kefalas, Board of Commissioners of Larimer County, Colorado, continued

LARIMER COUNTY | ENVIRONMENTAL AND SCIENCE ADVISORY BOARD

P.O. Box 1190, Fort Collins, Colorado 80522-1190, 970.498.5738, Larimer.org

MEMORANDUM

TO: Commissioner John Kefalas, Chair
 Commissioner Kristin Stephens, Chair Pro Tem
 Commissioner Jody Shadduck-McNally

FROM: Jim Gerekl, ESAB Chair and
 Ally Little, ESAB Board Member
 John Bleem, ESAB Board Member
 Shelley Bayard de Volo, Engineering and ESAB Liaison

DATE: May 13, 2021

RE: Comments on the Draft Environmental Impact Statement (dEIS) for the Rail Tie Wind Project

The Environmental and Science Advisory Board (ESAB) has reviewed portions of the Rail Tie Wind Project Draft EIS, focusing on topics that are relevant to Larimer County. From that review, the ESAB presents the following comments for your consideration. This wind project is located entirely in Albany County, Wyoming; however, Larimer County Board of County Commissioners should consider both the positive and negative impacts to its own residents and environment. The closing of the public comment period was scheduled for May 17th, 2021. However, Western Area Power Authority (WAPA) has agreed to accept comments from Larimer County Board of County Commissioners, and its Advisory Boards, sometime soon after the closing period.

Potentially positive impacts to Larimer County:

- ESAB hopes to encourage use of renewable energy on the grid and eliminate unnecessary layers of regulation to construct new renewable power sources. This project intends to generate up to 504 MW of wind energy, which can offset approximately 900,000 metric tons of carbon dioxide emissions annually, according to the dEIS. Actual emission reductions would depend on what other generation is displaced over time. Regardless of where the power goes on the regional electric grid, it has the potential to reduce energy produced from conventional electric generation (typically fossil-fueled sources in this region).
- This project would not typically require an EIS based on its location on private lands and State lands; however, because of the federal nexus through the connection with WAPA transmission facilities, the project proponent (ConnectGen) is required to go through the NEPA process. This process requires much more extensive environmental review and we found that the



0125-01

0125-02

RESPONSE(S)

Western Area Power Administration

0125-01

Comment noted.

COMMENT(S)

0125: John Kefalas, Board of Commissioners of Larimer County, Colorado, continued

May 11th, 2021
 Comments on DEIS for the Rail Tie Wind Project
 Page 2



0125-02,
continued

environmental analysis provided by the project proponent was thorough for the draft EIS. Additional analysis may be appropriate as the EIS approval process proceeds.

0125-03

- ConnectGen is considering use of Vestas wind turbines. The dEIS indicates that exact turbine selection will be finalized later in project planning, but additional use of Vestas products could have positive impacts for the Windsor blade facility and add to Larimer County's economy. Vestas also operates manufacturing facilities elsewhere in Colorado (producing towers, nacelles, etc.).

0125-04

Potentially negative impacts to Larimer County:

- Residents living in the northern-most portion of Larimer County will likely see the turbines, both during the day and in the evening. According to the Visual Impact Analysis, each turbine structure would have two FAA lights attached that would flash throughout the day and night. At night during clear conditions, the dEIS indicates these lights can be visible at a distance of 36.2 miles. Larimer County residents may see these lights, which could impact the night sky experience and contribute to light pollution. The ESAB recommends that a different source of lighting be considered that would only illuminate when aviation resources were present within the FAA allowed radius to minimize light pollution. Lighting design may also be modified to minimize downlighting and ground level impacts. We concur with the condition noted on page 4 of 30 in the Draft Programmatic Agreement between the WAPA and both the Colorado and Wyoming State Historic Preservation offices that notes within item 21:

0125-05

- o "Whereas, Applicant is committed to implementing environmental protection measures to reduce direct and indirect impacts to cultural resources, such as, reducing visual impacts when designing the layout of structures, building, infrastructure, using setbacks to avoid direct disturbance and seeking approval from the Federal Aviation Administration to use a sensor-based Aircraft Detection Lighting System to reduce nighttime lighting."

0125-06

- The operating life of the wind project appears to be 30-35 years, according to this dEIS. The ESAB recommends encouraging renovation at that point, rather than proceeding with a full decommissioning. This would lessen impacts associated with having to develop another (separate) site in the future to provide this source of renewable energy.

0125-07

- Section 3.10.4.1 of the dEIS describes the local Emergency Service Providers. The section notes that the closest wildfire responders would be the Tie Siding and the Vedauwoo Volunteer Fire Departments. While these wildfire responders are likely capable of responding to wildfires within the project area, volunteer fire departments in general are under-resourced. We recommend that the Rail Tie Wind Project make regular contributions, over the life of the project, to these VFD's to help support the maintenance and upgrades of their equipment and resources. Additionally, the Livermore Fire Protection District, in Larimer County, is not mentioned, and although they are more distant, they might be engaged if a fire crossed into Colorado. Mutual aid agreements should also be considered with other emergency responders in the region. We feel that this fire risk should be addressed in the dEIS and the potential impact to Larimer County resources should be addressed in a similar manner.

0125-08

Additional comments:

- At this time, it's unclear who the retail electricity customer(s) will be for the power produced from this project, but once interconnected with WAPA's transmission facilities it will undoubtedly go onto the regional grid. We confirmed that Platte River Power Authority (serving Estes Park, Fort Collins, Loveland, and Longmont), Tri-State Generation and

RESPONSE(S)

Western Area Power Administration

0125-02

Comment noted.

0125-03

Comment noted.

0125-04

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements. See section 3.2.5.3, "Proposed Action," Issue Statement #2 for a complete discussion of effects on night skies.

0125-05

See response to comment 0125-04.

0125-06

Comment and preference noted.

0125-07

As described in section 3.16.4, "Baseline Description," WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project's Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

0125-08

Comment noted.

COMMENT(S)

0125: John Kefalas, Board of Commissioners of Larimer County, Colorado, continued

May 11th, 2021
 Comments on DEIS for the Rail Tie Wind Project
 Page 3



Transmission Association (serving Poudre Valley REA and other REA's in Colorado), and Xcel are not planning to purchase from this project. Inquiry was also made to Xcel Energy (though no response was received as of this writing). Platte River Power, Tri-State and Xcel are the three wholesale utilities providing electricity to Larimer County. Other utilities provide power to the broader regional grid.

0125-09

It is unlikely that Larimer County residents will notice significant traffic impacts based on the traffic study included in the dEIS. Wind turbines will be shipped by rail to Laramie, which is equipped to offload large scale project components, and has done so for other wind power projects. Project components will then be trucked south on Highway 287 to the project site. Use of Highway 287 will be limited to construction equipment and construction personnel when mobilizing to the construction site. Depending upon when the wind generation system would be constructed, current plans to improve Larimer County Road 72 (Owl Canyon Road) from CR 21 to HWY 287 over the next three years may limit the desirability of this route. Those improvements involve road and bridge construction.

0125-10

One of the project goals, according to the dEIS, is to "Create temporary and permanent jobs in Albany County and contribute to Albany County's tax base", indicating that Larimer County economics is not expected to be impacted neither positively nor negatively.

0125-11

Environmental justice factors were considered in the dEIS. Some Larimer County residents may feel that they are being negatively impacted. In the Viewshed Analysis in the dEIS it was noted "beauty is in the eye of the beholder". Some will find wind farms to be a detriment to the natural landscape and others will look to it as a beacon of hope in the energy sector.

The ESAB hopes the BoCC will consider passing these comments on to ConnectGen as part of their open comment period and will consider them in their own decision to comment (or not) on the draft EIS. If additional assistance or information is needed, please feel free to reach out.

RESPONSE(S)

Western Area Power Administration

0125-09

Haul routes for the Project would originate from a number of locations, which are described in table 3-37 (see section 3.13.5.3, "Proposed Action"). Because Project-related vehicles would come from multiple locations, and because the material source locations are not yet identified, it can reasonably be assumed that Project vehicle routes would be spread out until the routes near the Project Area, where all traffic funnel onto a few roads and intersections. The intersections closest to the Project Area provide the most representative locations for impacts to traffic LOS, as these are the areas more likely to experience congestion or LOS impacts. Therefore, a specific LOS analysis was performed only for the intersections near the Project Area where road use would be concentrated; these intersections are summarized in table 3-36. Intersections farther from the Project Area, such as ones in Laramie or Fort Collins, are discussed as locations of possible impacts but are not analyzed quantitatively because the impacts would be less severe and more speculative than those analyzed. Larimer County Road 72 (Owl Canyon Road) was not included in the analysis area for transportation effects (see figure 3-16) because it is not a major travel route.

0125-10

Comment noted.

0125-11

Comment noted.

COMMENT(S)

0126: Pourya Nikoueeyan (via online form)

04/02/2021 14:27:38

Pourya Nikoueeyan

p.nikoueeyan@gmail.com

Rail Tie Wind public comments

0126-01 This is a great and much needed project for the County and the State. Good luck.

RESPONSE(S)

Western Area Power Administration

0126-01 Comment noted.

COMMENT(S)

0127: Kelsey Crea (via online form)

04/09/2021 13:06:04

Kelsey Crea

kelseyc2@airmail.net

Rail Tie Wind Project

0127-01

There have been several fires caused by wind turbine component failures in Wyoming. Have any studies been done to project the impact of one of these starting a fire and how much land would be effective because of the wind in the area?

RESPONSE(S)

Western Area Power Administration

0127-01

Fire occurrence in the Project Area has been sparse relative to fire occurrence in adjacent lands in the wider analysis area (see section 3.16.4.1, “Fire History,” for details). A section on fuel model types and fire history in the broader area was added to the *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021). The memorandum also includes a discussion of timber fires being large and often fueled by beetle kill but notes that the Project Area itself is dominated by finer grass and shrub fuels, which exhibit more moderate fire behavior. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and is available in the Project administrative record. As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels.

COMMENT(S)

0128: Laurie Sullivan (via online form)

04/11/2021 8:29:44

Laurie Sullivan

lpetric@live.com

Employment Opportunity?

0128-01

My husband is a won't technician and is looking for a position with the Rail Tie Wind Project. Who do we need to contact, i.e. who is managing the site once it's constructed?

RESPONSE(S)

Western Area Power Administration

0128-01

ConnectGen Albany County LLC will own and operate the wind energy facility.

COMMENT(S)

0129: Doreen Ryan (via online form)

04/11/2021 9:33:02

Doreen Ryan

sixhappygoats@gmail.com

In Case of Fire

0129-01 What Happens if One of the Turbines Catches Fire? No Fire Stations Close By!

RESPONSE(S)

Western Area Power Administration

0129-01

As described in section 3.16.4, “Baseline Description,” WTG fires are a rare event. Modern turbines have a SCADA system that detects and shuts down the system in the event of an emergency, such as fire. ConnectGen has completed an Emergency Response Plan in coordination with the Albany County Fire Warden, Emergency Management Coordinator, and County Sheriff to meet all applicable fire codes, regulations, and best practices. Wildfire mitigation measures would be developed in coordination with the Laramie Fire Department and Tie Siding Volunteer Fire Department and incorporated in the Project’s Emergency Response Plan (PHS-14). In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels. The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a description of fire response resources and mutual aid agreements. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, “Wildland Fire,” of the EIS and is available in the Project administrative record.

COMMENT(S)

0130: Eric Dalton (via online form)

04/26/2021 18:19:09

Eric Dalton

ekamdalton@earthlink.net

Rail Tie Wind DEIS - Yes to wind

Dear Mr. Wieringa and WAPA staff,

I support approval to tie the Rail Tie Wind project into existing WAPA power lines. I live nearby in Cheyenne. Over the last two years, we've vastly increased the number of turbines just outside Cheyenne. In an ideal world, we wouldn't need to mar vistas and threaten raptors. However, the unfolding climate crisis demands rapid, comprehensive action. Given that, I'm happy to be surrounded by turbines. Laramie Valley (where I own property) is also well suited to wind. We need wind to meet our national greenhouse gas reduction goals (requirements).

Sincerely, Eric Dalton
Cheyenne, WY
Albany County property owner

0130-01

RESPONSE(S)

Western Area Power Administration

0130-01

Comment and preference noted.

COMMENT(S)

0131: Ron Wilson (via online form)

Ron Wilson 04/27/2021 9:05:12
ron@hishotels.com

Rail Tie Public Comments

As a pilot for over 20 years with thousands of hours of experience and doing every allowable visual and instrument approach into the Laramie airport I am well qualified to speak on the subject of how the Aircraft Detection Lighting Systems (ADLS) will work, or in this case, not work.

One only needs to read the Advisory Circular (AC) dated 10/8/2016 from the Federal Aviation Administration (FAA) about "Obstruction Marking and Lighting". Note Chapter 14 of the AC that deals with Aircraft Detection Lighting Systems.

Rule 14.2.1.1 indicates "Horizontal detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the perimeter of the volume, which is a minimum of 3 NM (5.5 km) away from the obstruction or the perimeter of a group of obstructions.

Rule 14.2.1.2. says "Vertical detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the volume, which extends from the ground up to 1,000 feet (304 m) above the highest part of the obstruction or group of obstructions, for all areas within the 3 NM (5.5 km) perimeter defined in subparagraph 14.2.1.1 above.

Rule 14.2.3 indicates "Acceptance of ADLS applications will be on a case-by-case basis and may be modified, adjusted, or denied based on proximity of the obstruction or group of obstructions to airports, low-altitude flight routes, military training areas, or other areas of frequent flight activity. It may be appropriate to keep certain obstructions closest to these known activity areas illuminated during the nighttime hours, while the remainder of the group's obstruction lighting is controlled by the ADLS.

ConnectGen's Attachment 2 Site Plan of in its Application for Commercial Wind Energy Conversion Systems (WECS) Permit shows turbine locations will be within 3 NM of the near by mountain. So, they can not meet Rules 14.2.1.1 and 14.2.1.2 and rule 14.2.3 indicates ConnectGen's ADLS application will likely be denied. Appendix B-3 concludes "To provide an acquisition distance of 1.5 statute miles, a higher intensity of 20,000 candelas would be required. This light, with 3-statute mile visibility at night, could generate a residential annoyance factor." This is ten times the typical 2,000 candelas used with typical wind turbine lighting configurations.

All this mean very bright blinking lights will be on all night long. Also, the most used instrument approaches into the Laramie airport come from the East-Southeast and involve flying right over the proposed wind farm. The FAA will very likely require the red warning lights to stay on all night.

Please include this in the public comments.

0131-01

RESPONSE(S)

Western Area Power Administration

0131-01

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.

COMMENT(S)

0132: Ron Wilson (via online form)

04/29/2021 10:35:39

Ron Wilson

ron@hishotels.com

Rail Tie draft EIS

Update to my previous comments.

Please include this in the public comments.

As a pilot for over 20 years with thousands of hours of experience and doing every allowable visual and instrument approach into the Laramie airport I am well qualified to speak on the subject of how the Aircraft Detection Lighting Systems (ADLS) will work, or in this case, not work. One only needs to read the Advisory Circular (AC) dated 10/8/2016 from the Federal Aviation Administration (FAA) about "Obstruction Marking and Lighting".

Note Chapter 14 of the AC that deals with Aircraft Detection Lighting Systems. Rule 14.2.1.1 indicates "Horizontal detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the perimeter of the volume, which is a minimum of 3 NM (5.5 km) away from the obstruction or the perimeter of a group of obstructions." Rule 14.2.1.2. says "Vertical detection coverage should provide for obstruction lighting to be activated and illuminated prior to aircraft penetrating the volume, which extends from the ground up to 1,000 feet (304 m) above the highest part of the obstruction or group of obstructions, for all areas within the 3 NM (5.5 km) perimeter defined in subparagraph 14.2.1.1 above". Rule 14.2.3 indicates

"Acceptance of ADLS applications will be on a case-by-case basis and may be modified, adjusted, or denied based on proximity of the obstruction or group of obstructions to airports, low-altitude flight routes, military training areas, or other areas of frequent flight activity. It may be appropriate to keep certain obstructions closest to these known activity areas illuminated during the nighttime hours, while the remainder of the group's obstruction lighting is controlled by the ADLS." ConnectGen's Attachment 2 Site Plan in its Application for Commercial Wind Energy Conversion Systems (WECS) Permit shows turbine locations will be within 3 NM of the nearby mountain. So, they cannot meet Rules 14.2.1.1 and 14.2.1.2 and rule 14.2.3 indicating ConnectGen's ADLS application will likely be denied.

Appendix B-3 concludes "To provide an acquisition distance of 1.5 statute miles, a higher intensity of 20,000 candelas would be required. This light, with 3-statute mile visibility at night, could generate a residential annoyance factor." This is ten times the typical 2,000 candelas used with typical wind turbine lighting configurations.

The main Instrument approach into Laramie is the RNAV (GPS) RWY 30. Which is on a 120 degree line off the center of the two runways. This is the most convenient, and fuel-saving, approach for the airlines coming from Denver. This approach line runs out 15 NM (think 17.25 statute or regular miles) from the threshold of runway 30 to where a plane must be established on a direction and altitude. In reality Denver Center would have the pilot well established more than 15 NM out. So this line runs right between I-80 and US 287, just about over the "town" of Sherman. So based on 14.2.3 of the AC, I don't see how the FAA would allow ADLS approval due to the wind farm being smack in the middle of the main approach into Laramie. 150 20,000 candelas blinking tower lights, at night, is a very bright light. All this mean very bright blinking lights will be on all night long. Also, the most used instrument approaches into the Laramie airport come from the East-Southeast and involve flying right over the proposed wind farm. The FAA will very likely require the red warning lights to stay on all night.

Ron Wilson
61 Spruce Spring Rd
Laramie, WY

0132-01

0132-02

RESPONSE(S)

Western Area Power Administration

0132-01

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.

0132-02

ConnectGen will develop a lighting plan in coordination with the FAA prior to construction to ensure that the Project is in compliance with applicable FAA lighting requirements.

COMMENT(S)

0133: Keith Rittle (via online form)

05/02/2021 13:49:57

Keith Rittle

keith.rittle@gmail.com

Rail Tie Wind Project Support

0133-01

I write in support of approval of the Rail Tie Wind WAPA interconnect. Project proximity to existing regional transmission is a big plus, and the planned impact mitigations sound about right. The impacts as outlined in the EIS appear reasonable relative to the considerable economic and tax base benefits.

RESPONSE(S)

Western Area Power Administration

0133-01

Comment and preference noted.

COMMENT(S)

0134: Ruth Sommers (via online form)

05/10/2021 14:00:31

Ruth Sommers

somm8@icloud.com

Rail

0134-01

Can you tell me please if comments on the draftEIS can be accessed by the public? If so, when and how?

Thank you!

RESPONSE(S)

Western Area Power Administration

0134-01

WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, “Public Involvement and Scoping,” of the EIS.

COMMENT(S)

0135: Amy Nagler (via online form)

05/14/2021 15:12:31

Amy Nagler

AmyMNagler@gmail.com

Reject the Rail Tie Wind Project to protect habitat

0135-01

I urge you to protect undeveloped land in Wyoming from wind development. Wind farm impacts are incompatible with habitat, wildlife, and the untrammeled views we hold sacred in Wyoming. The only reason wind farms are sited in these areas is money. Place wind farms on the majority of lands that are already disturbed. Unreclaimed mine sites are everywhere in our state. Leave native habitats for future generations to enjoy. Leaving them as they are is not incompatible with wind development.

RESPONSE(S)

Western Area Power Administration

0135-01

Comment and preference noted.

COMMENT(S)

0136: Bonnie Bath (via online form)

05/15/2021 20:11:07

Bonnie Bath

Bkbath50@hotmail.com

Rail Tie Comment

0136-01

Hello and thank you for the opportunity to write in support of the Rail Tie Project. Extensive reports have been written. These reports and findings are not anecdotal evidence. There are many who oppose the project due to their own personal view scape, imagined decreases to property values, loss of tourism to Laramie. The majority of tourism in Laramie centers around the University of Wyoming. Some protesters state that the eco system will be ruined. The wind turbines surrounded by intact land will protect the eco system. Wildlife will continue to have places to graze and have their young. There are no game migration corridors in this area. Bird deterrents are being investigated by Connect Gen to help prevent bird deaths by turbines. The ice throw issue is a non issue with the automatic turnoff system. The FAA will make the final determination of allowing the aircraft detection system for night. Set backs are within county and state regulations to protect the health and safety of the public and adjacent landowners. Economically the area will benefit with taxable valuation and creation of jobs and goods purchased in

0136-02

Laramie. I am satisfied with the work done by WAPA. The only change I would suggest is that the view from Ames Monument not be mitigated, No one has suggested that anything be done to enhance the view from Ames Monument when one looks to the north, east and west from Ames Monument. While it is apparent that the view will change to some degree, the positives outweigh the negatives for the Albany County Residents. Thank you for your consideration. Bonnie Bath. Protesters call this a pristine area. Interstate 80, US 287, two branches of the Union Pacific railroad, cell towers, gas pipelines, propane tanks, cattle guards, corrals, ditches, barns, four county roads, and a transmission line, current power lines disqualify the proposed site of Rail Tie from being a pristine area. Some advocate that this area is best suited for a 5200 housing development to protect the area. What would that do for wildlife habitat, the springs and creeks, The climate change indicates that now is the time to decrease the use of fossil fuels. Wind energy produced in the proposed area will do exactly that. It will decrease the amount carbon going into the atmosphere. While the project will not cure climate change, it will help.

RESPONSE(S)

Western Area Power Administration

0136-01

Comment noted.

0136-02

Mitigation to the Ames Monument NHL will be addressed in a PA, as described in EIS section 3.6.5.3. As stated in section 3.6.5.2 of the EIS, the PA also addresses special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States. Per the EIS, alternatives for turbine arrangement consider the use of fewer larger megawatt turbines (84 6.0-MW turbines, up to 656 feet in height) and alternatively a greater amount of smaller megawatt turbines (up to 149 3.0 MW turbines, 500 feet in height). Regarding painting turbine towers and blades, per ConnectGen's Environmental Protection Measure VIS-4 (section 2.2.6, table 2-6), Turbine components will be painted with a light, nonreflective white color in accordance with the Albany County Wind Siting Regulations (Albany County 2015). Per the County regulations, this paint selection is to help the project blend with the natural visual character of the area; although, the painting will not be in camouflage pattern.

COMMENT(S)

0137: Bonnie Bath (via online form)

05/16/2021 9:00:52

Bonnie Bath

Bkbath50@hotmail.com

Comment Rail Tie

Hello and thank you for taking comments and offer support to the Rail Tie Project

0137-01

I wish to comment on fire suppression according to 4.1. Hopefully there would be no fire associated within the proposed project. This particular area has had fires associated with the Union Pacific railroad and fires which have extended from highway 287 from vehicles. The county of Albany would receive financial assistance and resources to help mitigate any expense to Albany County. It is unclear about the use of nacelle fire suppression units.

0137-02

The Rawlins Interagency Dispatch Center, a division of the Bureau of Land Management's (BLM's) High Desert District, dispatches wildfire services to six counties in southern Wyoming (including Albany County) on behalf of the counties, four BLM Field Offices, the State of Wyoming, Wyoming State Forestry, the National Park Service, and the U.S. Fish and Wildlife Service (Rawlins Interagency Dispatch Center 2018). The Wyoming State Forestry Division is responsible for fire suppression on Wyoming state land. Local fire districts and departments provide fire prevention and suppression activities on private lands and may assist with fires on federal or state lands as requested by the applicable land management agency. County-level fire districts have mutual aid agreements in place with one another as well as with local fire departments. These mutual aid agreements allow for the sharing of personnel, equipment, and resources, as needed

With the above resources, it appears that there are many resources to handle a potential fire.

Thank you Bonnie Bath

RESPONSE(S)

Western Area Power Administration

0137-01

In compliance with the Commercial Wind Energy Conversion System Permit from Albany County, a fire suppression system would be installed inside the nacelle to limit the spread and severity of a potential nacelle ignition, containing the damage within the turbine and limiting ignition of adjacent wildland fuels (see section 2.2.6, "Environmental Protection Measures").

0137-02

The *Rail Tie Wind Project Wildland Fire Background* memorandum (SWCA 2021) has been updated to include a description of fire response resources and mutual aid agreements. The *Rail Tie Wind Project Wildland Fire Background* memorandum is referenced in section 3.16, "Wildland Fire," of the EIS and is available in the Project administrative record.

COMMENT(S)

0138: Bonnie Bath (via online form)

05/16/2021 15:18:59

Bonnie Bath

Bkbath50@hotmail.com

Public Comment for RailTie

0138-01

Hello and thank you for taking comments, Many of those who oppose the project are concerned for their children and children saying they will move from the area. The project would last 30 to 40 years and then would be reevaluated. In that amount of time, there will most likely be different technologies and methods. Placing turbines will keep this land intact with some turbines on it. When it is time to decommission, keeping the land intact allows future generations to make the decision of the best use of this land. The turbines will come down and reclamation will begin and the best decision made then about the value and what to do with the land. If subdivision takes over these ranches, that will be the end of wildlife habit, a huge drain on the acquirer which is supplying the streams, springs and creeks. Allowing the land to go into the project will work like a savings account for the land. Once subdivisions start, that is the last crop that the land will produce there. Nothing is perfect but helping to produce clean energy seems like a good resource for the planet,

RESPONSE(S)

Western Area Power Administration

0138-01

Comment and preference noted.

COMMENT(S)

0139: Bonnie Bath (via online form)

05/16/2021 15:22:52

Bonnie Bath

Bkbath50@hotmail.com

public comment for Rail Tie

Hello and thank you for taking comments.

2.4 Decommissioning

The Proponent estimates that the Project would have a 35-year lifespan based on the useful life of the wind turbines. After that time, The Proponent would evaluate the continued operations of the Project and either upgrade and repower the facility with renegotiated leases or decommission it.

0139-01

This gives time to look and see what is the best future use of the land for the proposed project. I ask that you have a favorable response for Connect Gen and approve it for connection.

Thank You
Bonnie Bath

RESPONSE(S)

Western Area Power Administration

0139-01

Comment and preference noted.

COMMENT(S)

0140: Shane Zumpf (via online form)

05/16/2021 18:40:04

Shane Zumpf

szumpf@trihydro.com

Rail Tie Wind Draft EIS Comment

To Whom It May Concern,

0140-01

I'm writing to express concerns regarding the Rail Tie EIS statement that was submitted. In particular, section ES 6.11 states that property values may increase or decrease and does not adequately address multiple studies showing that property values may decrease in the area by as much as 55%. Please note the studies cited below along with a detailed analysis of the supplemental studies supplied in the Social and Economical supplemental report - which was heavily bias in ConnecteGen's favor.

<https://www.sciencedirect.com/science/article/pii/S014098831600044X> - This study is based on findings for a Wind Farm in Germany that showed a property value decrease of 9 – 14% based on properties whose views were strongly affected.

<https://rsaconnect.onlinelibrary.wiley.com/doi/epdf/10.1111/pirs.12197> - This study found evidence for visibility effects as being a key driver of negative impacts for property values.

0140-02

<http://le.uwpress.org/content/94/4/496.short> - this study indicates a negative impact on property values for “unwilling hosts” of wind farms. I would say that this definitely qualifies as one of the instances where we are “unwilling hosts”. The strong opposition to the project in the south of Laramie proper shows evidence of unwillingness for this project to occur.

<https://www.sciencedirect.com/science/article/abs/pii/S0095069615000418> - This study found “All these comparisons suggest that wind farm visibility reduces local house prices, and the implied visual environmental costs are substantial.”

0140-03

In addition to these studies in 2013 the Ontario Supreme Court found that Wind Farms indeed decrease property values between 22% and 55%. Please note that the 2013 ruling was after all of the studies that were cited in the social and economic impact report provided by ConnectGen. You can read more about the court decision here:

<https://www.farms.com/ag-industry-news/ontario-court-says-wind-turbines-reduce-property-values-882.aspx>

A quick breakdown of the studies that ConnectGen’s report cites:

Laposa and Mueller (2010) – this study only looked at the effect on property values from an announcement – NOT the actual installation and impact on the wind farm itself.

Hoehn et al. (2011)/ Magnusson and Gittell (2012)/ Hoehn et al. (2013) – These studies did not take into account viewshed impacts on areas where the viewshed was deemed exceptional, the wind farms were generally found in farming communities where the topography was flat, and did not take into account the “unwilling host” factor.

0140-04

To add on to this, Ben Hoehn, who was the primary author of many of the studies finding no impact on property values, has the appearance of a strong bias towards renewable energy as he is an Energy & Environmental Policy Research Scientist and Engineer with the Electricity Markets & Policy Group. Typically, scientists within a policy group tend to favor outcomes for the groups that they represent.

RESPONSE(S)

Western Area Power Administration

0140-01

Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0140-02

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0140-03

See page C-299 for response.

0140-04

See page C-299 for response.

COMMENT(S)

0140: Shane Zumpf (via online form), continued

RESPONSE(S)

Western Area Power Administration

0140-03

In the referenced case, it was evidence submitted by the plaintiffs in the case (i.e., those alleging harm from the announcement of a wind farm) that were “expert appraisal evidence that their properties were ‘likely’ devalued between 22% and 50% on the basis of the project proposal”. In a more detailed analysis of the case from a Canadian law firm it notes the court found “Despite the plaintiffs’ property valuation evidence, the Court concluded that the plaintiffs were unable to present any evidence linking the diminution in property values to the defendants.” Additionally, it notes: “Despite the success of the defendants on these motions, the plaintiffs have claimed success in proving that REA approvals may cause property value diminution.⁶ However, the Court accepted the alleged facts as proven only for the purposes of the motions for summary judgment. Wiggins is therefore of limited precedential value in this regard. Moreover, property valuation evidence, as presented by the plaintiff in Wiggins, cannot be considered by the Environmental Review Tribunal on an REA appeal, as the Tribunal is only empowered to consider evidence relating to “serious harm to human health” or “serious and irreversible harm to plant life, animal life or the natural environment.”” The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

0140-04

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate.

COMMENT(S)

0141: Bonnie Bath (via online form)

05/16/2021 20:17:41

Bonnie Bath

Bkbath50@hotmail.com

Question in regard to Rail Tie

0141-04

Hello and thank you for taking comments and questions. Do you have a process in place to distinguish locations and stakeholder status of those who submit comments and questions? A protesting group against Rail Tie had done an online petition to protest the project. Over a thousand online signatures were obtained on change.org. I do not feel that someone living in Switzerland, Porto Rica, the Netherlands, Canada, Georgia, /Texas, New York, New Jersey, Arizona, California has any standing in protesting to you. Comments need to come from stakeholders. If one does not own land, or a house, or work in Albany County or have a job in Albany County, or pay taxes in Albany county, utilize the public school system or health care system or drive on the roads or utilize emergency services in Albany County that person has no standing in decision making in Albany County, These are all services that could benefit from taxes and income from the Rail Tie Project. Please keep this in mind as you review information coming your way, The EIS looks at Rail Tie favorably. Thank you, Bonnie Bath

RESPONSE(S)

Western Area Power Administration

0141-04

WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, "Public Involvement and Scoping," of the EIS.

COMMENT(S)

0142: Karen Bard, Albany County Historic Preservation Board (via online form)

05/17/2021 10:32:22

Karen Bard

kcbard@charter.net

Rail Tie DEIS comments

0142-01 The Albany County Historic Preservation Board (ACHPB) believes that The Rail Tie project will permanently alter the historic and cultural landscape of the Laramie Valley in ways that require both on- and off-site mitigation. The "Historic Properties Visual Impact Assessment" states succinctly the reasons for adverse impact on many of the historic resources in the project area: strong vertical lines, constant blade movement, intrusions of color and texture, and the imposition of mammoth industrial objects into a rural landscape.

0142-02 The impact on historic assets will be profound. The Ames Monument offers a good example. The historic landscape is not only the 8-acre site set aside for the monument but the vista that the site provides of the vast Laramie Valley and the mountains beyond. This is the beginning of the west, a land that overwhelms the viewer. The blades of wind turbines in either of the proposed sizes extend above the horizon line of the mountains to the west and disturb this emblematic view, destroying the vast scale and distracting with constant movement. Overland Trail segments traversing this area are affected in at least three ways: 1) the horizontal landscape that give the necessary feeling of place will be disturbed by the vertical elements of the windmill installations; 2) the presence of these structures will be all the more intrusive because of their proximity; 3) trail segments and Rail Tie elements – two linear landscapes – will intersect in multiple, often unpredictable ways, to the detriment of remaining artifacts of the Overland Trail period.

One can look back and say that both the railroad and the construction of the Ames Monument, in their time, had impacts on the land. However, we would argue that neither comes close to the impact that these turbines as individual units, let alone a whole farm, have on the land and the landscape as a whole.

0142-03 One of the key weaknesses of the Draft EIS is that it did not engage in any kind of ethnography, the collection of stories and individual histories. If it had it would have captured the impact of the intrusion of new roads and access points as well as the repurposing of existing rural roads on life in the affected area. This loss is hard to document through key observation point analysis but this will be the only way to mitigate the impact. A public landscape will become largely private, either in law or in use, thus altering the most basic sense of place that holds communities together. It is also, coincidentally, a valuable depiction of the west that tourists to this area value.

We can endorse the project only after the following concerns are addressed:

0142-04 The exact size and placement of wind turbines has been determined. A specific example: a turbine that extends its blade above the western horizon line when viewed from the Ames Monument is unacceptable. If the project proceeds it would be in the best interest of the land, its users and the historic resources that the foot print of the wind farm be minimized.

0142-05 An off-site mitigation plan is formulated, one that addresses the ongoing needs of the community. This could include, for example, a series of workshops that would permit residents to identify and describe the meaningful landscapes in the valley or encourage the collection of stories and photographs that are situated in this landscape.

A series of meetings that would result in a handbook or tool kit offering citizens ways of discussing difficult preservation issues, adverse effects, preservation jargon, and mitigation strategies so that when future development projects arise our community has better ability to effectively and constructively comment in a collaborative and consultative process. A clearer mapping of future access to this landscape by residents and casual visitors.

0142-06 While the ACHPB is not opposed to renewable energy per se, there are concerns, as mentioned, that the project would disturb the historical landscape of the area. We also, acknowledge that the Rail Tie Project is in alignment with the State of Wyoming's strategic goal of relying less on fossil fuel resources and encouraging renewable resource use in the state to replace the funding generated by fossil fuel. However, it this project also impacts the way people perceive the space and how the space is used. Mitigation is not a substitute for preservation. The need for renewable energy must respect the integrity of individual historic sites like the Ames Monument and the landscape that gives us power as well. At the very least, the ACHPB will expect to be intimately involved in all mitigation projects to ensure the balance between the historic value of the land and the need for renewable energy is found. We are in the process of developing our Historic Preservation Plan for the county and this project will play a significant role in that plan.

On Behalf of the Albany County Historic Preservation Board
Karen Bard
Chair

RESPONSE(S)

Western Area Power Administration

0142-01 Yes, adverse effects were found for Ames Monument NHL and other resources, including the Overland Trail, Union Pacific Railroad, and Cheyenne Pass Road (see section 3.6.5.3). As stated in EIS section 3.6.5.3, measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen's Project Description (see chapter 2). Avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, HPTP would be developed per the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. The HPTP and the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced under NEPA; however, impacts to NRHP-eligible cultural resources could be permanent and long term. CR-5 (section 2.2.6, table 2-6) would be incorporated into project design with regard to the Ames Monument NHL. For the Proposed action, siting corridors analyzed for turbine placement would provide a minimum 1.1-mile setback from the NHL (section 3.6.5.3, table 3-21). As noted in section 3.6.5.2 of the EIS, the PA addresses special protections requirements for the Ames Monument as an NHL under Section 110(f) of the NHPA and the NHPA Section 106 process (36 CFR 800.10), weighing its exceptional value in commemorating or illustrating the history of the United States. Setbacks would minimize and reduce the visual impacts to the Ames Monument NHL. However, EIS analysis of the Project action concludes that the visual impacts caused by the Project to Ames Monument NHL, at a nearest distance of 1.1 miles, would remain strong and result in an adverse effect (section 3.6.5.3, table 3-21). After direct avoidance of the Ames Monument NHL and minimization of visual impacts, further treatment in implementation of the PA would mitigate remaining adverse effects.

0142-02 See page C-302 for response.

0142-03 See page C-302 for response.

0142-04 See page C-303 for response.

0142-05 See page C-304 for response.

0142-06 See page C-305 for response.

COMMENT(S)

0142: Karen Bard, Albany County Historic Preservation Board (via online form), continued

RESPONSE(S)

Western Area Power Administration

0142-02

Yes, adverse effects were found for the Overland Trail, which is addressed in EIS sections 3.6.5.1 (see table 3-20) and 3.6.5.2 (see table 3-21), and discussed in the HPVIA for the Project, made available to public at <https://www.wapa.gov/transmission/EnvironmentalReviewNEPA/Pages/rail-tie-wind-project.aspx>. Segments of this historic property that contribute to NRHP-eligibility of the trail might be located within the Project viewshed and APE. The EIS finds that strong visual impacts from the Project could occur at such trail segments within the APE. Confirmed intact portions of the Overland Trail are previously documented in the APE. The PA specifies further identification efforts and assessment of effects required for historic properties like the Overland Trail, to plan and implement the avoidance, minimization, or mitigation of adverse effects from the Project. EIS section 3.6.5.3 states that avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. In this manner, historic preservation measures would be applied for historic properties in the APE, including the Overland Trail. EIS section 3.2 Aesthetics and Visual Resources considers potential visual impacts of the Project on the Highway 287 corridor.

0142-03

WAPA is following the process prescribed in NEPA regulations and the associated CEQ guidelines, including agency and public scoping, independent review and verification of technical information, analysis and disclosure of expected significant impacts, and engagement of the public during review of the draft EIS. Once public draft EIS comments are addressed and incorporated as appropriate, the final EIS will be considered by the WAPA decision-maker to issue a record of decision. Public notification and public meetings have occurred during scoping and again for release of the draft EIS, with official posting in the Federal Register as well as advertisements in local newspapers (*Laramie Boomerang*, *Wyoming Tribune Eagle*, *The Coloradoan* [Fort Collins]) and social media announcements. These efforts are summarized in section 5.1, “Public Involvement and Scoping,” of the EIS.

COMMENT(S)

0142: Karen Bard, Albany County Historic Preservation Board (via online form), continued

RESPONSE(S)

Western Area Power Administration

0142-04

Per the EIS, alternatives for turbine arrangement consider the use of fewer larger megawatt turbines (84 6.0-MW turbines, up to 656 feet in height) and alternatively a greater amount of smaller megawatt turbines (up to 149 3.0 MW turbines, 500 feet in height). As stated in EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen’s Project Description (see chapter 2). Avoidance of impacts through design and micro-siting of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. Setback measures would minimize and reduce the visual impacts to the Ames Monument NHL. However, EIS analysis of the Project action does conclude that the visual impacts caused by the Project to Ames Monument NHL, at a nearest distance of 1.1 miles for potential turbine placement, would remain strong and result in an adverse effect (see section 3.6.5.3, table 3-21). Following direct avoidance of the Ames Monument NHL and minimization of visual impacts, remaining adverse effects would be mitigated through further treatment in implementation of the PA as described previously.

COMMENT(S)

0142: Karen Bard, Albany County Historic Preservation Board (via online form), continued

RESPONSE(S)

Western Area Power Administration

0142-05

Mitigation of impacts that could occur from the Project to historic properties has not yet been applied. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen's Project Description (see chapter 2). Avoidance of impacts through design and micrositing of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. Per the draft PA, Section IV (HPTP Development and Resolution of Adverse Effects): "if WAPA determines that the undertaking will have adverse effects on historic properties, WAPA shall consult with SHPOs, consulting parties and Indian tribes to develop and evaluate adjustments or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on those properties."

COMMENT(S)

0142: Karen Bard, Albany County Historic Preservation Board (via online form), continued

RESPONSE(S)

Western Area Power Administration

0142-06

The EIS recognizes that historic properties will be adversely affected. Per EIS section 3.6.5.3, further planning measures for avoidance, minimization, or mitigation of physical and nonphysical impacts to NRHP-eligible cultural resources would be developed in accordance with the PA and ConnectGen's Project Description (see chapter 2). Avoidance of impacts through design and micro-siting of Project infrastructure is preferred. If avoidance is not feasible, minimization measures would be implemented under the PA. Where avoidance and minimization measures would not eliminate adverse effects, an HPTP would be developed pursuant to the stipulations of the PA. The HPTP would define all avoidance, minimization, and mitigation measures for impacts to NRHP-eligible cultural resources. With the HPTP, the PA would adequately resolve all adverse effects under the NHPA. As noted in section 3.6.5.3, with the implementation of mitigation measures under the PA, the impact intensity of the Project would be reduced in magnitude under NEPA; however, resulting impacts to NRHP-eligible cultural resources could be permanent and long term. Per the draft PA, Section IV (HPTP Development and Resolution of Adverse Effects): "if WAPA determines that the undertaking will have adverse effects on historic properties, WAPA shall consult with SHPOs, consulting parties and Indian tribes to develop and evaluate adjustments or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on those properties."

COMMENT(S)

0143: Dennis Andersen, Victorian Society in America (via online form)

05/17/2021 14:24:30

Dennis Andersen

satisest@aol.com

Rail Tie Wind Project -- Draft EIS

0143-01

The draft EIS clearly outlines the detrimental effects of the planned turbine installations on the Ames Monument and its place in the landscape. Members of the Victorian Society in America regard this monument -- the westernmost project of acclaimed Boston architect Henry Hobson Richardson and sculptor Augustus Saint-Gaudens -- to be one of critical importance, especially when seen in relationship to the surrounding landscape. We urge reconsideration of placement of these turbine so that the Ames Monument may continue preeminent in its historic setting. - Dennis Andersen, Chair, Historic Preservation Committee, The Victorian Society in America.

RESPONSE(S)

Western Area Power Administration

0143-01

The EIS recognizes that there will be adverse effects on Ames Monument NHL that will require avoidance, minimization, or mitigation, if not fully avoidable. Setback measures would minimize and reduce the visual impacts to the Ames Monument NHL. However, EIS analysis of the Project action does conclude that the visual impacts caused by the Project to Ames Monument NHL, at a nearest distance of 1.1 miles for potential turbine placement, would remain strong and result in an adverse effect (section 3.6.5.3, table 3-21). Following direct avoidance of the Ames Monument NHL and minimization of visual impacts, remaining adverse effects would be mitigated through further treatment in implementation of the PA as described previously. Per the EIS, alternatives for turbine arrangement consider the use of fewer larger megawatt turbines (84 6.0-MW turbines, up to 656 feet in height) and alternatively a greater amount of smaller megawatt turbines (up to 149 3.0 MW turbines, 500 feet tall).

COMMENT(S)

0144: Wendy Estes-Zumpf (via online form)

05/17/2021 14:29:22

Wendy Estes-Zumpf

estes_wendy@hotmail.com

Rail Tie draft EIS public comment

Avian Resources

The draft EIS does not consider studies conducted to inform siting of wind energy developments relative to impacts on wildlife in Wyoming (Fargione et al. 2012; Pocewicz et al. 2013). The goal of these studies was to identify areas with high wind energy potential and low impacts to wildlife resources. The proposed project falls in areas identified by both studies as having high impacts to wildlife relative to other areas with high wind energy potential. These studies need to be considered when siting the proposed project.

The avian study recorded only 2 species of waterfowl (Canada Goose and American Pelican). This is likely due to the sampling design. The project area is in an avian migration corridor (Pocewicz et al. 2013) and numerous species of migratory birds have been documented regularly fly through the project area in the spring and fall, with highest concentrations in the spring. Species commonly seen include Snow Geese, Canada Geese, Sandhill Cranes, and multiple species of gulls and ducks. Although the outside the project area, many of these waterfowl and riparian birds use the various national wildlife refuges in the Laramie Plains (including Hutton Lake NWR), plains lakes, and riparian corridors throughout the Laramie basin as migration stopover points as well as nesting and feeding grounds. The stopover areas draw migrating waterfowl and riparian birds down. During spring migration, these avian species migrate through the project area in large flocks. During bad weather (storms, fog, etc.), entire flocks fly much closer to the ground, making them much more likely to be killed by direct collisions with wind turbines. The draft EIS downplays the magnitude of likely waterfowl and riparian bird mortalities due to wind turbine collisions and the subsequent population-level impacts.

0144-01

The project area is known to support many raptors, including Golden Eagles. The study cited in the draft EIS (WEST 2019b) documented 47 observations of Golden Eagles. The study also found that 56.7% of diurnal raptors were observed flying at RSH heights. The draft EIS downplays the likelihood of raptor mortalities due to wind turbine collisions and subsequent population-level impacts.

The draft EIS does not provide estimates of the number of Golden Eagles and other raptors expected to be killed by wind turbines. The draft EIS should provide data on how the density of eagles and other raptors in the project area compares with densities prior to wind energy development in other areas and the number of turbine collision mortalities in those areas after development.

Considering the number of Golden Eagles in the project area, the project should pursue an Eagle Incidental Take Permit under the US Fish and Wildlife Service. On page 129, the draft EIS states that, "a Bird and Bat Conservation Strategy (BBCS) would be developed and implemented to avoid and reduce potential impacts to avian and bat species that could result from the Project." However, strategies proposed do not include ANY to avoid or reduce potential impacts from wind turbine collisions, despite stating in the preceding paragraph that "wind turbine collision fatalities during the operational stage of the Project are expected to be the primary adverse effect on avian species." Proven effective BBCS need to be identified and implemented to avoid or reduce impacts from wind turbine collisions.

4.3.4 Cumulative Impacts – The draft EIS states, "Past and present actions within the cumulative impacts area for avian and bat species were accounted for in the affected environment. No RFFAs fall within this cumulative impacts area." The draft EIS does not do a sufficient job of addressing the cumulative impacts to avian and bat species, particularly migratory species. The draft EIS needs to take into consideration the high-impact avian migration areas already heavily impacted by large-scale wind energy developments (i.e., Chochecherry, Sierra Madre, multiple facilities in the Shirley Basin, etc.; Pocewicz et al. 2013). In addition, wind energy developments between Cheyenne and Laramie are already present in additional high-impact avian areas. The cumulative effects of wind turbine avian fatalities due to consistent placement of large-scale wind energy development in important migration corridors in Wyoming needs to be considered, particularly the population-level effects of these combined facilities.

0144-02

p. 127 mentions that disturbed vegetation communities could be beneficial to European Starlings. European Starlings are not native to North America. They are highly invasive and outcompete native birds for food and nesting resources.

0144-03

References

Fargione, J., J. Kiesecker, M. J. Slaats, S. Olmb. 2012. Wind and Wildlife in the Northern Great Plains: Identifying Low-Impact Areas for Wind Development. PlosOne 7: e41468
Pocewicz, A., W. A. Estes-Zumpf, M. D. Andersen2, H. E. Copeland, D. A. Keinath, H. R. Griscom. 2013. Modeling the Distribution of Migratory Bird Stopovers to Inform Landscape-Scale Siting of Wind Development. PlosOne 8: e75363.

RESPONSE(S)

Western Area Power Administration

We did not consider Fargione et al. (2012) or Pocewicz et al. (2013) due to scale issues. Broad-brush predictive modeling has limitations for site-specific analyses due to the practice of "painting" broad swaths of land as sensitive without considering local conditions. Predictive modeling can provide a guide only. The draft EIS relied on site-specific and local scale data for its analyses. With respect to Fangione et al. (2012), that publication identifies low-impact areas in relation to wind power class, areas of disturbance, and broadly identified conservation areas. It is unclear why the Project Area is not considered a low-impact area since none of the conservation areas appear to overlap the Project Area. The lack of a low-impact designation appears to be due to an absence of existing disturbance in the Project Area and not as result of its designation as a habitat conservation priority area. With consideration to Pocewicz et al. (2013), and specifically in reference to Figure 2, nearly the entire state of Wyoming would be considered an important avian migration concentration area if we pooled all suites of birds together. Such broad-brush application is not meaningful for site-specific analyses. Moreover, the authors recognized that some species are not well-represented by the models. For instance, the authors noted that bald eagle, ferruginous hawk, and Swainson's hawk migration patterns did not fit the raptor migration model due to specific habitat needs (pg. e75363). Therefore, the draft EIS relied on the avian use studies conducted for the Project Area, which provided site-specific data on which avian species are present in the Project Area. Migration pathways have not been identified at a spatial scale relevant to evaluating impacts for the Project. Migratory flyways are mapped on a continental scale and well-known raptor migration pathways have been identified along prominent ridgelines (e.g., Commissary Ridge); however, no specific pathways are known for the Project Area. While we can make an informed assessment whether ridgelines and other topographic features may provide favorable migratory conditions for some species (e.g., diurnal raptors), nocturnal migration is generally along broader fronts. The avian use data collected for the Project comply with guidelines provided in the FWS's *Land-Based Wind Energy Guidelines* and *Eagle Conservation Plan Guidance* for evaluating potential impacts to breeding and migratory birds.

0144-01

0144-02

See page C-308 for response.

0144-03

Comment noted.

COMMENT(S)

0144: Wendy Estes-Zumpf (via online form), continued

RESPONSE(S)

Western Area Power Administration

0144-02

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.

COMMENT(S)

0145: Wendy Estes-Zumpf (via online form)

05/17/2021 15:12:26

Wendy Estes-Zumpf

estes_wendy@hotmail.com

Rail Tie Draft EIS public comment

Big Game

0145-01

In 3.4.6, the draft EIS says that population level impacts to big game are not anticipated. There are no data to support this. Although research on the impacts of wind energy development are limited, on p. 109 the draft EIS discusses several studies where impacts have been noted. The EIS then cites two documents it uses to assert that big game species do not necessarily abandon habitats within or adjacent to wind energy facilities. These documents should be viewed with caution. The Tetra Tech 2020d is not a study. It only references reports that big game have been observed in the vicinity of wind turbines. Observations were not part of pre- and post- habitat use by big game species. The other study cited (Walter et al. 2004) is a presentation at regional conference of The Wildlife Society. In this study, 10 elk were tracked and were not found to not significantly alter their home range or diet; however, the draft EIS fails to point out that elk in this study were dependent on crops in the project area for forage during winter and that the two distance metrics used provided conflicting results, with one metric showing movement away from the wind facility in 6 of 10 months.

RESPONSE(S)

Western Area Power Administration

0145-01

In the draft EIS, impacts to HMUs are assessed in an attempt to understand impacts to big game species habitat at the population and community levels. For each big game species assessed in the draft EIS, less than 3 percent of the available HMU overlaps the Project Area, supporting our claim that we do not expect community- or population-level impacts. The draft EIS was written using the best available, peer-reviewed science. We have retained Walter et al. (2004) in our analyses since it is the best available science. However, we added text for clarification on its comparability with the study area.

COMMENT(S)

0146: Holly Dyer, Office of State Lands & Investments (via online form)

05/17/2021 15:14:51

Holly Dyer

holly.dyer@wyo.gov

Rail Tie Wind Project Draft EIS Comment

Dear Mr. Mark Wieringa,

The Office of State Lands and Investments (OSLI) is aware the Draft Environmental Impact Statement (DEIS) cooperating agency comment period for the Rail Tie Wind project has begun, and offers the following comments relative to the DEIS.

0146-01

Section 3.8.1 of the DEIS ("Land Use – Regulatory Background") states that a special use lease is required by the Wyoming State Lands Office for a Right of Way (ROW) on State Trust Lands, further defining a 'special use' as any use of State land other than for grazing, agriculture, extraction of minerals, or uses authorized under easements granted. While the provided definition of a special use lease is accurate, a special use lease is not the required agreement for wind energy projects on State Trust Lands. The required lease for wind energy projects on State lands is a wind energy lease, pursuant to Chapter 6 of the Board of Land Commissioners' (Board) Rules and Regulations, authorized under the authority of W.S. 36-2-107 and W.S. 36-5-114 through W.S. 36-5-116, as stated in the DEIS. Further, please note ConnectGen Albany County LLC (ConnectGen) entered into a wind energy lease agreement with the Board on January 21, 2021, effective January 1, 2021 for the State trust lands within the Rail Tie Wind Project boundary.

0146-02

Similarly, Section 3.11.1 of the DEIS ("Recreational Resources – Regulatory Background") restates the above information regarding special use leases. Please note, pursuant to Chapter 13 of the Board Rules and Regulations "Public Hunting, Fishing, and General Recreational Use," any organized, developed, or commercial recreational use of state lands is prohibited unless it occurs under provisions of a special use lease issued under Chapter 5 of the Board Rules and Regulations. While casual recreational uses, as defined within Chapter 13, Section 2(b) of the Board Rules and Regulations is a privilege to the public for legally accessible lands, this day use shall not result in damage to the state land or the roads and improvements thereon. However, casual recreational day uses may be closed by direction of the Board either on its own motion or upon request of the surface lessee.

0146-03

Additionally, the final sentence of the first bullet point on Section 3.11.1 of the DEIS should be corrected to reflect that a wind energy lease agreement rather than a special use lease is required for the development of wind energy projects on State trust lands; of which, a wind energy lease agreement is currently in place.

We appreciate the opportunity to comment and look forward to our continued participation in this process. If we may be of further assistance, please do not hesitate to contact this office.

Sincerely,

Holly Dyer
Assistant Director
Trust Land Management Division
Office of State Lands & Investments

RESPONSE(S)

Western Area Power Administration

0146-01

Comment noted and EIS revised as suggested.

0146-02

Comment noted and EIS revised as suggested.

0146-03

Comment noted and EIS revised as suggested.

COMMENT(S)

0147: Wendy Estes-Zumpf (via online form)

05/17/2021 15:24:58

Wendy Estes-Zumpf

estes_wendy@hotmail.com

Rail Tie Draft EIS public comment

Economic Impact

0147-01

The draft EIS states “the Project would not be expected to materially decrease the property values for nearby homes.” This claim is not substantiated. Citations used in the draft EIS to support no decrease in property value have been cherry-picked and there is no mention of multiple studies and even court rulings where property losses of up to 55% have been documented. The draft EIS needs to 1) provide an unbiased summary of the impacts of wind energy development on property value, and 2) redo their economic impact analysis so that it includes the range of possible economic impacts possible due to decreased property value and the resulting decrease in revenue from property tax.

RESPONSE(S)

Western Area Power Administration

0147-01

The draft EIS was written using the best available, peer-reviewed science. Additional research, made available since the publication of the draft EIS, has been incorporated where appropriate. Section 3.12, “Social and Economic Resources (including environmental justice),” of the draft EIS contains information on social and economic resources, including impacts to property values. Based on comments received during the public comment period, another search for relevant peer-reviewed information was conducted. Studies cited in the EIS are appropriate because they use large sample sizes and robust price models, and are based in the United States. These studies indicate that values of residential properties near wind farms are dependent on many factors. The evidence shows that wind farm announcement, construction, and operation may be a factor that affects property values, but they have not been shown to have a substantial, predictable impact to residential property value on their own.