Wyoming Industrial Development and Siting Act

Section 109 Permit Application
Chugwater Flats Energy Development

Prepared for

Chugwater Flats Energy Project

January 4, 2010

Prepared by

Novelution Wind

Novel Solutions to Today's Energy Challenges

Final Report

Wyoming Industrial Development Information and Siting Act

Section 109 Permit Application
Chugwater Flats Energy Project

Prepared for

Chugwater Flats Energy Project, LLC

A Wyoming Limited Liability Company
Chugwater, Wy

January 4, 2010

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ABBREVIATIONS & ACRONYMS

AC	alternating current
ac-ft	acre-feet
ac-ft/yr	acre-foot per year
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
amsl	above mean sea level
APLIC	Avian Power Line Interaction Committee
AWEA	American Wind Energy Association
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BOP	Balance of Plant
cm	centimeter
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CFEP	Chugwater Flats Energy Project
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	decibel
dBA	units used to measure sound pressure level
DC	direct current
DNV	Det Norske Veritas
DOE	Department of Energy
DOI	Department of the Interior
DTA	Down Town Assembly
EHS	Environmental, Health, and Safety
EIA	Energy Information Administration
EISA	Energy Independence and Security Act
EMF	Electromagnetic fields
EMS	Emergency Medical Services
EO	Executive Order
EPA	Environmental Protection Agency
EPC	engineering procurement construction
ESA	Environmental Site Assessment or Endangered Species Act
ESS	Electrical Simplification System
E-stops	Emergency stops
FAA	Federal Aviation Authority
FEMA	Federal Emergency Management Agency

FHWA	Federal Highway Administration
ft2	square feet
GE	General Electric
GL	Germanischer Lloyd
GW	Gigawatt
hp	horsepower
Hwy	Highway
IBC	International Building Code
ISA	Industrial Development Information and Siting Act
ISC	Industrial Siting Council
ISD	Industrial Siting Division
IEC	International Electrotechnical Commission
IMPLAN	Impact Analysis for Planning
I-O	Input-Output
ISO	International Organization for Standardization
km	kilometer
kv	kilovolt
LLC	Limited Liability Company
LOS	Level of Service
m	meter
MBTA	Migratory Bird Treaty Act
MCE	maximum considered earthquake
MG	million gallons
mm	millimeter
m2	square meters
mph	mile per hour
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NEPD	National Energy Policy Development
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTIA	National Telecommunication Information Agency
NVW	Novelution Wind, LLC
OES	Occupation Employment Statistics
O & M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
REA	Rural Electric Association

REMI	Regional Models, Inc
RIMS II	Regional Industrial Multiplier Systems II
ROI	Region of Influence
rpm	revolutions per minute
RPS	Renewable Portfolio Standard
SAM	Social Account Matrix
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
TAC	Technical Advisory Committee
TESA	Threatened and Endangered Species Assessment
UI	Unemployment Insurance
USACE	U.S. Army Corps of Engineers
USACOE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCI	Vapor Corrosion Inhibitor
WDEQ	Wyoming Department of Environmental Quality
WDEQ-AQD	-Air Quality Division
WDEQ-ISD	-Industrial Siting Division
WDEQ-WQD	-Water Quality Division
WECC	Western Electricity Coordinating Council
WIRHS	Wildlife Incident Reporting and Handling System
WEST, Inc	Western EcoSystems Technology, Inc.
WGFC	Wyoming Game and Fish Commission
WGFD	Wyoming Game and Fish Department
WSGS	Wyoming State Geological Survey
WTG	Wind Turbine Generator
WYDOT	Wyoming Department of Transportation
WYPDES	Wyoming Pollutant Discharge Elimination System
WYSEO	Wyoming State Engineer's Office
WYSHPO	Wyoming State Historic Preservation Office
yd2	square yards

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Executive Summary

On January 4, 2010, Chugwater Flats Energy Project, LLC (CFEP), a Wyoming limited liability company wholly owned by Novelution Wind, LLC (NVW), submitted its Section 109 Permit Application pursuant to Wyoming Statute (W.S.) § 35-12-109 of the Industrial Development Information and Siting Act (ISA). The application is for the construction and operation of the Chugwater Flats Energy Project (CFEP or Project) near Chugwater, Wyoming and is to be constructed in three phases.

CFEP proposes to construct, own, and operate the Project on leased private and state lands located in Platte County and Goshen County. The Project will be constructed in three phases:

1. **Phase One** - approximately one-hundred-and-sixteen (116) General Electric Company (GE) 1.5-megawatt (MW) wind turbine generators (WTGs) for a total nameplate capacity of approximately 174 MW.
2. **Phase Two** - approximately three-hundred-and-seventy (370) GE 1.5-MW WTGs for a total nameplate capacity of approximately 555 MW.
3. **Phase Three** - approximately three-hundred-and-fourteen (314) GE 1.5-ME WTGs for a total nameplate capacity of approximately 471 MW.

After all phases of the project are completed, the Project will consist of approximately 800 WTGs for a total nameplate capacity of approximately 1.2 giga-watts (GW).

The Project will include engineering, purchase, and construction of all equipment and facilities necessary for a fully operational wind energy electrical generation project. The Project will be executed with the expertise of an Engineering Consultant as well as a Construction Contractor with experience in the wind industry. CFEP will be teaming up with industry experts to ensure the timely procurement of major equipment such as WTGs, main power transformers, cable, and breakers.

The application includes all of the information required by W.S. 35-12-109, including all applicable ISA implementing rules and regulations. The data and analyses are included here in Sections 1 through 7 and corresponding appendices. In addition, the signature letter was submitted under separate cover to the Wyoming Department of Environmental Quality (WDEQ) Industrial Siting Division (ISD). CFEP requests issuance of a Section 109 Permit pursuant to W.S. § 35-12-109 that covers the construction and operation of the Project.

ISA Statute and Cost

A meeting was held with the Wyoming Department of Environmental Quality-Industrial Siting Division (WDEQ-ISD) on September 16, 2009, in which the ISD staff determined that the estimated capital costs of construction for the Project meet or exceed the current statutory jurisdictional capital construction cost threshold of $175.5 million (W.S. § 35-12- 102(vii)).

Location

The Project site is located in Platte and Goshen County, Wyoming, on a gently rolling, elevated plain bounded to the northeast and east by the escarpment of the Goshen Hole Lowland and to the west by the valley of Chugwater Creek. The Phase I of the Project Area is approximately 7 miles northeast of Chugwater (**Appendix A**). Elevation throughout the Project area ranges from approximately 5,100 to 5,400 feet (ft) above mean sea level (amsl). Interstate 25 (I-25) runs approximately 5 miles west of the project site. Several paved, gravel, and unimproved two-track roads traverse the Project area. The Project site is relatively undeveloped except for livestock grazing, farming, and some roads to service inactive missile silos.

Land Use

The Project and associated transmission line corridor will be located on state and leased private fee lands in Platte County. The Project site is relatively undeveloped except for livestock grazing and farming. The Project will not require the use of any federally managed lands. Project roads and infrastructure will occupy several parcels of State of Wyoming land. CFEP has obtained Wind Energy Lease Agreements from the Board of Land Commissioners.

Components

The primary components of the Project will include WTGs mounted on tubular towers, transformers, electrical collector lines, fiber optic communication cable, turbine access roads, necessary meteorological towers, a supervisory control and data acquisition (SCADA) system, and substation. Additional infrastructure will include an operations and maintenance (O&M) building to be erected in the Town of Chugwater.

CFEP will have general oversight of the wind turbine generator supply and delivery, balance of plant engineering, procurement, planning, scheduling, cost control, evaluation of proposals and equipment, permitting, construction, commissioning, testing, and operation of the facility. The selection of the

Engineering Consultant and Construction Contractor is currently under consideration.

Construction Schedule

CFEP anticipates an approximate 33-month construction period with road building beginning in the Second Quarter 2010. The majority of the Project construction will be concentrated in a 30-month period (Second Quarter 2010 through Third Quarter 2012), during which the site will be prepared and the WTGs will be delivered, installed, and commissioned. The WTGs for Phase I are expected to be delivered Second Quarter 2010. WTG erection and commissioning will likely occur Second Quarter through Fourth Quarter 2010. During that time, personnel from the equipment manufacturer will be on site to supervise the installation and commissioning of the WTGs. It is anticipated that Phase II will start in the First Quarter of 2011 and Phase Three construction will start in the First Quarter of 2012. The current estimated completion date of the Project (i.e., under normal construction circumstances, weather conditions, labor availability, and materials delivery) is December 2012.

Construction and Operation Workforce Requirements

Access roads will be constructed beginning in the Second Quarter 2010, and appurtenant infrastructure will be developed when all permits are obtained, which is anticipated in Second Quarter 2010. The construction workforce is expected to vary from a low of 78 in Second Quarter 2010 to a high of approximately:

1. Phase I – high of 151 during Second through Third Quarter 2010
2. Phase II – high of 194 during Second through Third Quarter 2011
3. Phase III – high of 194 during Second through Third Quarter 2012

During the operations phase, an estimated full-time permanent workforce of approximately 16 to 17 persons will be employed by the Project in Phase I growing to a total of approximately 64 full time employees when the Project is completed.

Transportation

Workforce and delivery vehicles are expected to use Interstate 25 (I-25), WYO 313 (Lone Tree Road), Slater Road and County Line Road to access private roads in the Project area. Access routes for turbine and tower deliveries requiring wider trucks and higher clearance will be coordinated with the Casper Office of the Wyoming Department of Transportation (WYDOT) to avoid disruption and ensure safe travel conditions.

The WTGs, steel tubular towers, and electrical collector line will be trucked directly to the Project site using semi-tractor trailers. All GE turbine components are expected to be shipped by rail to the city of Chugwater rail site before being trucked to the Project site.

Transportation routes associated with over-sized loads will be finalized with WYDOT. Based on input from WYDOT, over-sized load deliveries will avoid planned road and bridge improvement projects. Construction trucks are expected to access WY 313-E from I-25 at Exit 54 south west of Chugwater, and then follow it to County Line Road in order to access the Project site. Trucks will travel north on County Line Road to access the Project site. CFEP will coordinate delivery of oversized loads with the local school systems where practical to ensure that school bus routes are not impacted by deliveries or delays.

Public Involvement Activities

Through numerous informational meetings and presentations, CFEP representatives actively sought out potentially affected municipalities, counties, state agencies, and other stakeholders to discuss potential environmental, social, and economic issues and to identify mitigation recommendations and solutions that could be incorporated into the planning and design of the Project. The Project area of study, as identified by the ISD staff during the Jurisdictional Meeting, determined the elected local government officials invited to these meetings by CFEP.

CFEP has contacted elected local government officials representing Platte and Goshen counties, and Chugwater, Wheatland, Torrington, Glendo, Yoder, LaGrange, Lingle, Guernsey, Hartville, and Ft Laramie. CFEP advertised the Project as well as the dates and locations of two open houses in five local newspapers that covered all of the above mentioned areas as well as the unincorporated town of Hawk Springs as part of the pre-application filing process to inform the public of the Project, receive comments and input, and address concerns.

Given the close proximity of Chugwater and Wheatland to the Project, CFEP representatives participated in two public open house meetings to ensure that the concerns of these communities were identified and addressed. These meetings were advertised in five newspapers that covered all of Platte and Goshen Counties in order to invite all concerned parties to attend these open houses. The meeting in Chugwater was held on December 3, 2009 and the meeting in Wheatland was held on December 4, 2009. CFEP staff also attended the December 15, 2009 Platte County Commissioners meeting to educate the commissioners as well as the public about the project and answer questions.

CFEP has notified all relevant State of Wyoming agencies of the Project and invited their input and involvement. CFEP has conducted specific meetings with the Wyoming Game and Fish Department (WGFD), Wyoming Department of State Parks and Cultural Resources State Historic Preservation Office (WYSHPO), and the WYDOT Casper Office to ensure that their concerns were identified and addressed. CFEP met with the U.S. Fish and Wildlife Service (USFWS) to discuss micrositing activities and ensure that the Project was appropriately sited and that impacts to resources under USFWS jurisdiction (i.e., federally listed species, raptors, migratory birds) would be avoided or minimized to the maximum extent practicable. A more detailed description of these meetings as well as other meetings that CFEP hosted can be found in **Section 4 Public Involvement** of this application.

Socioeconomic Impacts

The socioeconomic impact analysis evaluated the benefits and impacts to the social and economic resources in the area of study and primary area of site influence. To measure potential impacts, the socioeconomic analysis compared the expected future conditions in the area of study with and without the Project. The recommended area of study was defined as Platte and Goshen counties. The counties included in the area of study were determined through objective analysis and in consultation with ISD staff.

Both local communities and the state overall will realize benefits from the Project. Wyoming will gain economic benefits, including permanent job creation, tax revenues, and expansion of clean and renewable energy generation within the region. Locally, the Project will result in potential allocation and distribution of Impact Assistance Fund payments, local spending on goods and services, additional local economic activity, increased land lease revenues (i.e., to landowners and the State of Wyoming), and tax revenues.

Due to the size of the construction workforce, the Project will place minimal demands on water, sewer, roads, electrical lines, or other local infrastructure. Therefore, construction and operation of the Project will not significantly affect the various public and non-public facilities and municipal services as a result of in-migration of workers for non-basic employment opportunities.

Environmental Impacts

CFEP has reviewed existing data and conducted cultural resource inventories, wetlands and waters of the U.S. delineations, threatened and endangered species habitat evaluations, greater sage-grouse lek surveys, sharp-tailed grouse lek surveys, and noise and visual resource analyses to document and

characterize baseline conditions of the Project area. All baseline resource information has been used by CFEP to site Project components to avoid or minimize the potential for environmental and natural resource impacts. Potential visual and noise impacts are insubstantial and are considered well within acceptable levels. Avian-use fixed surveys, bat detection surveys, and raptor nest surveys are ongoing and will be incorporated into micrositing activities where appropriate for future phase development.

Fixed-point avian-use surveys were performed from July 1, 2009 through September 18, 2009, in and around the Project area. Additional avian surveys including raptor nest surveys are ongoing and will continue through 2010. The fixed-point survey data suggest that the Project is not within a concentrated migratory pathway and the Project area does not appear to provide important stopover habitat for migrant songbirds. This fixed-point avian use data for the Project is within the range reported for other Wind Resource Areas where operational fatality levels are acceptable and indicate that no portions of CFEP should be specifically avoided in response to avian use.

The Project is located outside the Greater Sage-grouse Core Area identified in the Governor's Executive Order 2008-2. Avian use studies were initiated past the raptor nesting season. WEST, Inc will continue avian use studies in and around the project area. Raptor nest and sharp-tailed grouse lek surveys will be conducted in the Spring 2010. CFEP will continue to work with Wyoming Game and Fish Department and U.S. Fish & Wildlife Service to develop appropriate buffers and timing recommendations for any active nests or leks that are present within or around the Project area.

A Class II Cultural Resource Inventory was completed for the Project area in 2009. Historic resources including homesteads and ranching loci were readily discernable during the initial resource inventory. The sites are considered ineligible for listing on the National Register of Historic Places (NHRP). It was determined that virtually all of the proposed Project area has been subject to cultivation—with wheat fields, grass fields, and plowed (fallow) fields alternately in evidence throughout the site. Owing to protracted cultivation spanning decades, it is hypothesized that the potential for buried cultural materials is extremely low, perhaps even non-existent, across the project area. However, if buried materials are encountered during construction operations, work will cease, and immediate notification provided to the State of Wyoming Historic Preservation Office (WYSHPO) will occur.

CFEP has sited Project infrastructure to eliminate or minimize the risk of discharges of dredged or fill materials into wetlands, ephemeral streams, or potentially jurisdictional waters of the United States. Definitive micrositing of appurtenant linear features during the final design phase will further reduce the

potential for impacts to jurisdictional and nonjurisdictional waters to the extent practicable. CFEP has minimized the number of ephemeral stream crossings and, where complete avoidance is not practical, will limit impacts to ephemeral/intermittent water bodies to the maximum extent practical. The nearest perennial water body is Chugwater Creek, located over one mile from the nearest Project disturbance. Construction practices and micrositing of facilities are designed to minimize risk of erosion or discharge into the ephemeral/intermittent water bodies; therefore, no direct or significant indirect impact to aquatic or fishery resources would occur during Project construction or operation. Clean Water Act (CWA) compliance will be required.

1. Purpose, Need and Benefit

1.1 Purpose

The objective of CFEP is to construct, own, and operate a renewable wind energy facility that will provide wind-generated electricity to the grid in Wyoming as well as the regional transmission system. Wind-generated power produced by the Project would further advance the objectives of the President's National Energy Policy to diversify energy sources by utilizing non-hydroelectric renewable sources, such as wind, to a greater extent (National Energy Policy Development Group, 2001). The Project also supports Governor David Freudenthal's desire to diversify Wyoming's energy supply resources.

CFEP, a Wyoming limited liability company, is a special purpose vehicle created by Novelution Wind, LLC (also a Wyoming limited liability company), for the purpose of developing a wind farm near Chugwater, Wyoming. CFEP has partnered with several well-established and experienced firms to bring this project to fruition. The purchaser(s) of the electricity generated by the Project is currently under consideration. The output of the Project will total 1.2 GW (to be built in three phases) of renewable electrical generation to the grid.

Recent national and regional forecasts project that the consumption of electrical energy will continue into the future. This increased consumption requires development of new generation facilities to satisfy demand, as substantiated by the following:

- The Energy Policy Act of 2005 (P.L. 109-58), Section 211, states "It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity." The Act encourages the development of renewable energy resources, including wind energy, as part of an overall strategy to develop a diverse portfolio of domestic energy supplies for the future.
- President Executive Order (E.O.) 13212 (Bush, 2001): "Actions to Expedite Energy- Related Projects" established a policy that federal agencies should take appropriate actions, to the extent consistent with applicable law, to expedite projects to increase the production, transmission, or conservation of energy.
- The National Energy Policy Development Group (NEPDG) (2001) recommended to the President, as part of the National Energy Policy, that

the Departments of the Interior, Energy, Agriculture, and Defense work together to increase renewable energy production.

- To address increased interest in wind energy development and to implement the National Energy Policy recommendation to increase renewable energy production, the Bureau of Land Management (BLM) established a wind energy development program. This program, which included the amendment of multiple land use plans, supported the Congressional direction provided in the Energy Policy Act of 2005 regarding renewable energy development on public lands, the directives of E.O. 13212, and the recommendations of the NEPDG.
- On March 11, 2009, Secretary of the Interior Ken Salazar signed Order No. 3285 – Renewable Energy Development by the U.S. Department of the Interior (DOI) (U.S. Secretary of the Interior, 2009), which establishes the development of renewable energy as a priority for the DOI. Encouraging the production, development, and delivery of renewable energy is now one of the DOI's highest priorities. Although the Project would not involve any DOI lands, Order No. 3285 presents one facet of the federal government's energy policy and demonstrates the Administration's desire to support renewable energy projects such as wind facilities.
- The Energy Information Administration (EIA), a statistical agency of the U.S. Department of Energy (DOE), predicts in the Annual Energy Outlook (March 2009) that total electricity demand will grow by 0.5 percent per year from 2006 through 2030, with total renewable generation growing by 3.3 percent per year from 2006 to 2030 (DOE/EIA, 2009). This rapid growth reflects the impacts of the renewable fuel standard in the Energy Independence and Security Act of 2007 (EISA; U.S. Congress, 2007) and strong growth in the use of renewables for electricity generation spurred by renewable portfolio standard (RPS) programs at the state level (DOE/EIA, 2009).
- The Western Electricity Coordinating Council (WECC), which forecasts electricity demand in the western United States, states in the *10-Year Coordinated Plan Summary 2006-2015* (July 2006) that peak demand and annual energy requirements in the Rocky Mountain Power Pool Area, which includes Wyoming, are projected to grow at annual compound rates of 2.4 percent and 2.2 percent, respectively, from 2006 through 2015 (WECC, 2006).
- In 2004, the Western Governors' Association set a goal of developing 30,000 MW of clean energy by 2015 from traditional and renewable energy sources (Policy Resolution 04-13, June 2004). This goal was reaffirmed in 2006 by Policy Resolution 06-10, *Clean and Diversified Energy for the West* (Western Governors' Association, 2006).

1.2 Need

The Project will contribute up to 1.2 GW of clean, renewable electrical energy. Several parties are currently being considered at this time for purchasing the electricity.

The completion of the Project will continue CFEP's commitment to build the highest quality wind energy projects in appropriate areas and to develop strong working relationships with utilities and local communities where the projects are located. Construction, operation, and implementation of the Project responds to the national call for more renewable energy and the mandate from many western states for increased production of renewable energy. CFEP will incorporate local hires into the project's workforce to the extent possible.

1.3 Benefits

Wind-generated electricity has the potential to provide renewable electricity to homes and businesses without emitting air pollution or depleting non-renewable resources. The kinetic energy of the wind power in the project area will be converted into electrical energy with no requirements for additional fuel sources and without emitting greenhouse gases. The expansion of renewable wind energy projects furthers one of the State's objectives of using a key attribute (wind) effectively for the long-term economic benefit of its residents.

Development of the Project carries significant economic benefits for the State of Wyoming and the community surrounding the Project Area. These benefits include the creation of new jobs and businesses, added *ad valorem* taxes, and support for the local economy.

1.3.1 Regional and Local Benefits

A typical concern with the location of new industries is that demand for services such as schools, roads, water supply, and waste disposal associated with population increases will increase more than the tax base that the new industry brings. While providing positive benefits to the local economy, the Project will have minimal impacts on communities and their infrastructure. Wind energy projects provide a much-needed boost to the regional economy while contributing to the local employment and tax base for the life of the Project (at least 20 years). Local communities will be able to plan for and accommodate the incremental changes resulting from the in-migrating temporary construction workforce, keeping in mind that there will be a preference for local hires. The permanent maintenance crew that will be necessary after the project is constructed will

consist of local hires to the greatest extent possible.

Due to the relatively short timeframe for construction and the limited operations workforce required, the Project will place minimal demands on water, sewer, roads, electrical lines, or other local infrastructure. In addition, there would be little measurable increase in non-basic employment, as these jobs are generated from ongoing employment of the existing base of construction workers and would be maintained through the continued employment of preferably local, and to the extent necessary, non-local construction workers. Therefore, construction and operation of the Project will not significantly affect the various public and non-public facilities and services described above from the in-migration of workers for non-basic employment opportunities.

The Project will generate distinct and positive economic impacts during both construction and operation phases. Specifically, development and construction will result in a short-term surge in economic spending activity, while operation will produce long-term economic benefits to local communities. Both sources of regional economic stimuli will result in increased output, income, and employment in Platte and Goshen counties.

Implementation of the Project is expected to have beneficial effects on employment, earnings, and tax revenues. A major facet of the socioeconomic impact of large capital infrastructure projects is the total economic impact on specific local economic sectors and various positive effects on the local economy. The increases in employment or output often occur locally as a result of new business locations and community events, and such changes have positive implications for other parts of the local economy.

The Project's economic benefits to both local communities and the State of Wyoming include the following:

- Additional *ad valorem* taxes
- Increased need for and expenditure on local goods and services
- Potential allocation and distribution of Impact Assistance Fund payments over the construction period
- Continued investment in new wind energy in Platte and Goshen Counties
- Land lease revenues for local landowners and the State Land Trust
- Increased use of the local service industry
- Development of a zero-carbon, clean, renewable source of electricity
- Negligible impacts to local government and municipal services
- Creation of jobs and stable employment
- Peak of approximately 194 temporary construction jobs
    - Phase 1 = 151 during Second and Third Quarter of 2010
    - Phase 2 = 194 during Second and Third Quarter of 2011

    - Phase 3 = 194 during Second and Third Quarter of 2012
- Addition of approximately 64 permanent full-time jobs
- Increased sales and use tax revenues from temporary and permanent employees purchasing goods and services during construction and operation of the Project
- Additional property taxes paid by new employees moving into the area

1.3.2 Local Economy

The primary local economic impacts associated with the introduction of new business activity are as follows: increased employee compensation (wages and salaries exclusive of withholdings), purchases made by the new business, and taxes paid to local governments. The more local businesses are able to supply the needs of the employees and the new business, the greater will be the local economic impact of the new business.

Economic multipliers are often used to estimate the total economic impacts of a project or new business activity. The concept is that employee wages and business purchases have a “ripple effect” in an economy. The new business will purchase some of its required materials, supplies, and services in the local economy, and those local businesses in turn will hire some new employees, creating indirect effects. Employees at the new business or project will likewise spend a portion of their wages at local stores and businesses, creating induced effects. In this way, the economic impact of the new business or project spreads in the local economy like a ripple spreads across water. In order to estimate the total economic impacts, economic multipliers are used in conjunction with the direct employment, wages, business purchases, and taxes paid.

In addition to providing a stimulus to the local economy in the form of expenditures on materials and supplies (referred to as procurements), the Project will employ construction workers who are expected to spend much of their income in the study area, thus stimulating additional output in the various sectors that provide consumer goods and services such as hotels, restaurants, etc. Thus, the Project is expected to result in a temporary increase in employment and income within the study area during the construction period. During the operation period, there will be a slight increase in permanent employment and thus a more permanent and positive impact on the local economy.

1.3.3 Summary of Benefits

The primary benefits attributable to the Project as described below include the following:

- Potential distribution of Impact Assistance Fund payments

- Increased local spending
- Increased local professional job opportunities
- Land lease revenue payments
- Tax effects
- Environmental benefits

1.3.3.1 Distribution of Impact Assistance Funds

Pursuant to W.S. § 35-12-102(a)(vii), the proposed costs of the Project were reviewed by the ISD and determined to exceed the 2009 statutory threshold construction cost amount of $175.5 million. Therefore, the Project falls under the ISA requirements, whereby local governments are eligible to receive Impact Assistance Fund payments.

Appendix B (prepared by ISD) provides an estimate of the amount of Impact Assistance Fund payments that could be expected as a result of the Project expenditures and increased sale and use taxes. A review of **Appendix B** shows that the monthly average of Impact Assistance Fund payments from December 2009 through November 2010 is estimated to be $124,115.00 with a monthly average of $10,343.00.

1.3.3.2 Land Lease Revenue Payments

Lease payments for land to local area ranchers and farmers is an important source of secondary income to the landowners. This income, in turn, is expected to flow into the local economy, generating additional local benefits. In this case, the local benefit is truly realized due to the fact that the landowners live in the local area. After the Project is operational, this land will serve a dual purpose by allowing for the continued use of conventional livestock grazing, ranching, and farming activities.

1.3.3.3 Tax Effects

Tax effects are an important consideration and benefit of the Project. The primary tax benefit will be the *ad valorem* taxes collected over the life of the Project. In conjunction with associated ancillary activities, state and local tax revenues will also be generated during construction and anticipated 20-year life of operation of the proposed facility. Although some of these tax revenues will be distributed on a local level, the state controls such distribution.

1.3.3.4 Environmental Benefits

Wind power is a renewable and non-polluting source of electricity. It is clean energy that produces no emissions, which means it does not contribute to acid rain and snow, global climate change, smog, mercury contamination, water

withdrawal, or particulate-related health effects. The Project will contribute to the power purchaser's overall renewable electrical generation yet will not create direct pollutant emissions during operation. In addition, unlike most other electrical generation sources, WTGs do not consume water. Lastly, construction and operation of the Project is a non- extractive source of electrical generation, typically resulting in direct disturbance of 2 to 4 percent of the land within the defined Project area.

1.3.3.5 Increased Local Spending

Spending on construction and operation of the Project will positively affect the local economy directly, through the purchase of local goods and services, and indirectly as those purchases, in turn, generate purchases of intermediate goods and services from other related sectors of the economy. In addition, direct and indirect increases in employment and income will enhance overall local purchasing power, thereby inducing further spending on goods and services. This cycle is expected to continue until the dollars spent eventually leak out of the local economy as a result of taxes, savings, or purchases of non-locally produced goods and services.

1.3.3.6 Increased Local Activity

The Project will be a modest to moderate source of new local professional job opportunities in the region. Specifically, permanent O&M positions will provide new local wage jobs (i.e., jobs above entry level and providing industry-scale income), some requiring specialized backgrounds in wind operations. These positions may also add to the local economy through the employee purchase of residential homes, thereby increasing the local tax base.

1.3.3.7 State of Wyoming Land Trust Lease Revenue Payments

Project roads and infrastructure will occupy 3.5 sections of State of Wyoming land for which CFEP has obtained a Wind Energy Lease Agreement from the Board of Land Commissioners. The Wind Energy Lease includes structured payments for the use of the State land, which are reflective of the lease agreements in place with private landowners. Fees typically include an annual fee per acre during development, an installation fee based on capacity payable when commercial operation begins, and an operating fee based on energy generated by facilities on State lands.

2. Applicant and Facility Description

In accordance with W.S. 35-12-109, the application shall contain the information required by the ISA with respect to both the construction period and the following information the Council determines necessary.

The following sections provide information relevant to W.S. 35-12-109 and detailed Project-specific information relating to the intention of CFEP to construct, own, and operate a 1.2 GW wind energy facility near Chugwater, Wyoming.

2.1 Applicant Information

Rule I Section 7(a) (W.S. § 35-12-109(a)(i)) – Name and Address of Applicant. An application for a permit shall be filed with the division, in a form as prescribed by council rules and regulations, and shall contain the name and address of the applicant, and, if the applicant is a partnership, association or corporation, the names and addresses of the managers designated by the applicant responsible for permitting, construction or operation of the facility.

Applicant:

Chugwater Flats Energy Project, LLC
PO Box 172
215 First Street
Chugwater, WY 82210

The following manager has been designated by CFEP to be responsible for permitting the Project:

Deirdre Laviolette
Vice President Environmental Management
Chugwater Flats Energy Project, LLC
PO Box 172
215 First Street
Chugwater, WY 82210

The following manager has been designated by CFEP to be responsible for constructing the Project:

Dr. Thomas Laviolette
President
Chugwater Flats Energy Project, LLC

PO Box 172
215 First Street
Chugwater, WY 82210

CFEP is owned by Novelution Wind, LLC, a Wyoming Limited Liability Company.

2.2 Point of Delivery of Goods and Services

39-15-111(c) – Distribution. If any person commences after the effective date of this act to construct an industrial facility, as that term is defined in W.S. 35-12-102, under a permit issued pursuant to W.S. 35-12-106, or if the federal or state government commences to construct any project within this state with an estimated construction cost as specified in the definition of industrial facility in W.S. 35-12-102, the state treasurer shall thereafter pay to the county treasurer and the county treasurer will distribute to the county, cities and towns of that county in which the industrial facility or project is located, impact assistance payments from the monies available under paragraph (b)(i) of this section.

For purposes of this subsection, the industrial facility or federal or state government project will be deemed to be located in the county in which a majority of the construction costs will be expended.

The construction and operation of the Project will result in the purchase of goods and services, both for the Project itself and for the needs of the associated construction and operations workforce. Goods and services procured for construction activities will be obtained from various local, regional, and national vendors. CFEP anticipates that the majority of the Project's components will be railed and trucked to the Project site.

Platte County will be the primary point of delivery for components associated with the Project.

2.3 Site Selection

W.S. § 35-12-109(a)(vii) – Site Selection. An application for a permit shall be filed with the division, in a form as prescribed by council rules and regulations, and shall contain a statement of why the proposed location was selected.

The Project site was selected for the following reasons:

- The site offers a commercial wind resource based on meteorological data and production estimates
- The site is outside Greater Sage-grouse Core Areas and big game crucial winter ranges

- Siting studies indicate minimal environmental resource constraints, each of which can be avoided or minimized through planning and design
- The site is located near a high-voltage transmission system.

2.4 Nature and Location of the Facility

Rule I Section 7(b) (W.S. § 35-12-109(a)(iii)) – Nature and Location of Facility. An application for a permit shall be filed with the division, in a form as prescribed by council rules and regulations, and shall contain a description of the nature and location of the facility; and – A description of the specific, geographic location of the proposed industrial facility.

The Project site is located in Platte and Goshen Counties, Wyoming, approximately 7 miles northeast of Chugwater (**Appendix A**). The project is oriented on the flats. Elevation throughout the Project area ranges from approximately 5,100 to 5,400 feet (ft) above mean sea level (amsl). Interstate 25 (I-25) runs approximately 5 miles west of the project site. Several paved, gravel, and unimproved two-track roads traverse the Project area. The Project site is relatively undeveloped except for farming and livestock grazing and some roads to service inactive missile silos.

The Project and associated transmission line corridor will be located on state and leased private fee lands in Platte and Goshen County. In addition, the Project will not require the use of any federally managed lands. Project roads and infrastructure will occupy 3.5 sections of State of Wyoming land for which CFEP has obtained a Wind Energy Lease Agreement from the Board of Land Commissioners.

The Project is located in the Western High Plains Ecoregion (Chapman et al. 2004), which is characterized by high elevation, arid climate, and flat-to-rolling topography. Native vegetation in this Ecoregion is typically short prairie grasses such as blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloe dactyloides*), but much of the region has been converted to cropland, primarily winter wheat. There is little development in the study area. Several homesteads, many of which are abandoned, occur throughout the area and several missile silos, operated by Warren Air Force Base, also occur in the area. Additionally, underground pipelines and overhead power lines traverse portions of the CFEP. Topography within the study area is relatively flat to gently rolling. The northern-most section of CFEP abuts Goshen Rim, a line of eroded sandstone bluffs, cliffs, and pinnacles where elevation drops steeply. Elevations in the study area range from approximately 5,100 to 5,400 feet above sea level.

Land cover within Phase I of the Project area is comprised of 40.4% cropland (primarily winter wheat [*Triticum* spp.]), 34.1% grassland, 22.8% scrub-shrub,

2.6% developed open space, and 0.1% evergreen forest. Within a one-mile (1.6 kilometer [km]) buffer of CFEP, the primary land cover is cropland (36.1%), grassland (34.4%) scrub-shrub (26.2%) and developed open space (2.7%); all other land cover types comprise less than 1% of the area (Table 2-1).

Table 2-1 The Land Cover Types, Coverage, and Composition On and Within One Mile (1.6 km) of CFEP Phase I

Habitat	Acres	Percent
Project Area Phase I		
Developed, Open Space	71.19	2.6
Evergreen Forest	1.48	0.1
Scrub-shrub	617.93	22.8
Grassland	926.77	34.1
Crops	1,098.11	40.4
Total	**2,715.48**	**100**
Project Area Phase I and One-Mile Buffer		
Developed, Open Space	516.06	2.7
Barren	21.43	0.1
Evergreen Forest	27.63	0.2
Scrub-shrub	4,928.33	26.2
Grassland	6,471.70	34.4
Pasture/Hay	34.80	0.2
Crops	6,792.21	36.1
Woody Wetlands	12.71	0.071
Emergent Wetlands	5.30	<0.01
Total	**18,810.17**	**100**

Source: USGS NLCD (2001)

2.5 Preliminary Site Plan

Rule I Section 7(b)(i) – Preliminary site plans at an appropriate scale indicating the anticipated location for all major structures, roads, parking areas, on-site temporary housing, staging areas, construction material sources, material storage piles and other dependent components.

CFEP has completed a preliminary site plan layout for the Project that minimizes environmental impacts and addresses community concerns to the most detailed extent practical. See **Appendix A** for the preliminary site plan.

2.6 Land Ownership

Rule I Section 7(b)(ii) – Land Ownership. The area of land required by the industrial facility and a land ownership map covering all the components of the proposed industrial facility.

The Project and transmission corridor are located on private and State lands. Land for all phases of the Project in Platte and Goshen Counties totals approximately 24,853 acres of which approximately 1/3 CFEP currently has leased with ongoing negotiations in the rest of the Project Area. Three and a half sections of state land totaling 2,240 acres will be used for the Project. CFEP has secured a Wind Energy Lease Agreement with the State of Wyoming, Board of Land Commissioners for the use of state- owned parcels within the Project boundary. No federal lands will be used for the Project or transmission line. Table 2-2 provides the legal description of the Project's location. A land ownership map is provided in **Appendix A**.

Table 2-2 Site Legal Description

County	Section	Location	Township	Range
Platte	All	Section 1	Township 22 North	Range 66 West
Platte	All	Section 2	Township 22 North	Range 66 West
Platte	All	Section 3	Township 22 North	Range 66 West
Platte	All	Section 10	Township 22 North	Range 66 West
Platte	All	Section 11	Township 22 North	Range 66 West
Platte	All	Section 12	Township 22 North	Range 66 West
Platte	All	Section 13	Township 22 North	Range 66 West
Platte	All	Section 14	Township 22 North	Range 66 West
Platte	All	Section 15	Township 22 North	Range 66 West
Platte	All	Section 22	Township 22 North	Range 66 West
Platte	All	Section 23	Township 22 North	Range 66 West
Platte	All	Section 24	Township 22 North	Range 66 West
Platte	All	Section 25	Township 22 North	Range 66 West
Platte	All	Section 26	Township 22 North	Range 66 West
Platte	All	Section 27	Township 22 North	Range 66 West
Platte	All	Section 34	Township 22 North	Range 66 West
Platte	All	Section 35	Township 22 North	Range 66 West
Platte	All, State Land	Section 36	Township 22 North	Range 66 West
Platte	All	Section 1	Township 21 North	Range 66 West
Platte	All, State Land S 1/2	Section 2	Township 21 North	Range 66 West
Platte	All	Section 3	Township 21 North	Range 66 West
Platte	All	Section 5	Township 21 North	Range 65 West
Platte	All	Section 6	Township 21 North	Range 65 West
Platte	W 1/2, SE 1/4, SWNE	Section 6	Township 22 North	Range 65 West
Platte	All	Section 7	Township 22 North	Range 65 West
Platte	W 1/2, SE 1/4	Section 8	Township 22 North	Range 65 West
Platte	All, State Land	Section 16	Township 22 North	Range 65 West
Platte	All	Section 17	Township 22 North	Range 65 West
Platte	All	Section 18	Township 22 North	Range 65 West
Platte	All	Section 19	Township 22 North	Range 65 West
Platte	All	Section 20	Township 22 North	Range 65 West
Platte	All	Section 21	Township 22 North	Range 65 West
Platte	All	Section 28	Township 22 North	Range 65 West
Platte	All	Section 29	Township 22 North	Range 65 West
Platte	All	Section 30	Township 22 North	Range 65 West
Platte	All	Section 31	Township 22 North	Range 65 West
Platte	All	Section 32	Township 22 North	Range 65 West
Platte	All	Section 33	Township 22 North	Range 65 West
Platte	All, State Land	Section 16	Township 21 North	Range 65 West
Goshen	W 1/2	Section 22	Township 22 North	Range 65 West

2.7 Project Phase Descriptions and Future Modifications

W.S. § 35-12-109(a)(vi) – Future Additions and Modifications. An application for a permit shall be filed with the division, in a form as prescribed by council rules

and regulations, and shall contain future additions and modifications to the facility to which the applicant may wish to be approved in the permit.

The Project will be constructed in a three phases for a total of 1.2 GW during an anticipated 33-month construction period. No future phases or modifications to the Project are planned.

2.8 Wind Energy Facility Components

Rule I Section 7(c) – A general description of the major components of the proposed industrial facility such as boilers, steam generators, turbine generators, cooling facilities, production equipment, and dependent components.

The Project will use eight hundred (800) GE 1.5-MW model WTGs. Facilities and related infrastructure will include WTGs mounted on tubular towers, transformers, and electric and fiber optic communications cable. Some electrical collector cables may be installed above ground where doing so would minimize environmental impact or be necessary because of terrain. Access roads, meteorological towers, a SCADA system, and an O&M building also will be constructed. A Project substation will be constructed within the Project area. The O&M building will be located in the town of Chugwater.

2.8.1 Wind Generators

GE 1.5-MW

The GE 1.5-MW WTG is a three-blade, active yaw-and-pitch regulated machine with power and torque control capabilities. The rotor diameter is 77 meters (m) (253 ft), and the height at the hub is expected to be up to 80 m (262 ft) (see Figure 2-2). The swept area of the rotor is 4,657 square meters (m2) (5,570 square yards [yd2]), and the rotor typically operates 10 to 20 revolutions per minute (rpm). The Project will include construction and erection of eight hundred (800) GE 1.5 MW WTGs.

The WTGs will be mounted on a poured concrete pad and spaced at distances equal to approximately two and a half to three rotor diameters between turbines and eight to ten rotor diameters between turbine rows, depending on the specific turbine site characteristics.

WTGs consist of three main structures: steel tubular tower, nacelle, and rotor blades. The WTGs for the Project will be grouped in strings, interconnected with an underground power collection system at a centrally located substation.

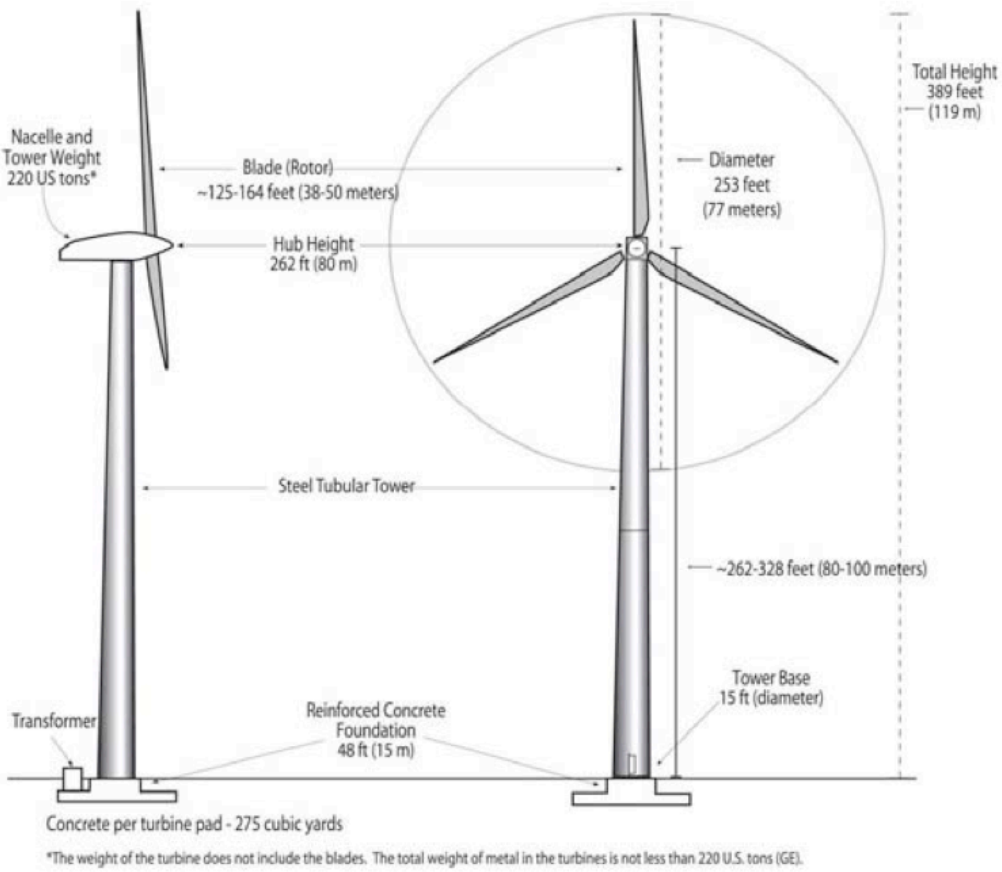
2.8.2 Rotor Blades

Three fiberglass epoxy or polyester resin blades connected to a central rotor hub power the WTGs. Wind creates lift on the blades, causing the rotor hub to spin. This rotation is transferred to a gearbox where the speed of rotation is increased to the speed required for the attached electric generator that is housed in the nacelle. The rotor blades turn slowly, typically less than 20 rpm. Although the blades are non-metallic, they are equipped with a sophisticated lightning protection system.

2.8.3 Nacelle

The gearbox, generator, and various pieces of control equipment are enclosed within the nacelle, which houses the unit that protects the turbine mechanics and electronics from environmental exposure. A yaw system is mounted between the nacelle and the top of the tower on which the nacelle resides.

Figure 2-2 GE 1.5 MW Wind Turbine and Tower



The yaw system is composed of a bearing surface for directional rotation of the turbine and a drive system consisting of a drive motor(s) to keep the turbine

pointed into the wind to maximize energy capture. A wind vane and anemometer are mounted at the rear of the nacelle to signal the controller with wind speed and direction information.

2.8.4 Tower Structures

The towers supporting the WTGs will be a tapered monopole, up to approximately 80 m (262 ft) in height. The tower is supported by a reinforced-concrete foundation ranging from 15 to 24 m (48 to 80 ft) in diameter, depending on final engineering designs. The towers will be uniformly painted a neutral color that complies with Federal Aviation Administration (FAA) requirements for daylight marking. The towers feature a locked entry door at ground level and an internal access ladder with safety platforms for access to the nacelle. A controller cabinet will be located inside each tower at its base. Towers are pre-fabricated in three sections and delivered and assembled on site.

2.8.5 Transformers

A step-up transformer will be installed at the base of each WTG to increase the output voltage to the level of the power collection system (34.5 kV). A small concrete slab or fiberglass foundation, a concrete vault, or other suitable base will be used to support the step-up transformers.

2.8.6 Foundations

The tower for the WTG will be set on a poured-in-place concrete foundation. The actual foundation design for each WTG turbine will be determined based on site-specific geotechnical information and structural loading requirements of each turbine model.

2.9 Additional Project Features

Rule I Section 7(c) – A general description of the major components of the proposed industrial facility such as boilers, steam generators, turbine generators, cooling facilities, production equipment, and dependent components.

2.9.1 Access Roads

New gravel access roads will be constructed to access WTGs or substation locations and along the length of turbine strings. Access roads will be designed under the direction of a professionally licensed engineer and compacted to meet turbine and transformer equipment load requirements specified by the vendor. Unimproved two-track ranch roads are present throughout the Project and will be used where possible to minimize disturbance. All roads will be sited to minimize impact on sensitive resources (e.g., raptor nests, cultural resource sites,

wetlands, and water bodies). To allow safe passage of the large transport equipment used in construction, normal-weather gravel roads will be built with adequate drainage and compaction to handle expected loads. Road widths will be approximately 40 ft (12.2 m). The Project is anticipated to include approximately 50 miles (80km) of newly constructed access roads.

2.9.2 Power Collection System

The Project electrical system will consist of three key elements:

1. A collector system that collects energy generated at low to medium voltage from each WTG, transforms it to 34.5 kV through a pad-mounted transformer, and delivers the power through a network of electrical conductors.
2. A Project substation that transforms energy delivered by the collector systems from 34.5 kV to 230 kV.
3. A 230-kV transmission line, which will deliver the electricity and interconnect to an existing substation.

The majority of the collector system will be buried directly in the soil approximately 3 to 4 ft (0.9 to 1.2 m) below ground surface (bgs). However, where site-specific considerations require, the collector system may be above ground. Using aboveground structures allows the collector cables to cross other facilities and span drainages and highways, thus reducing environmental impacts. Overhead pole structures, if used, will generally be 35 to 80 ft (10.7 to 24.4 m) tall, depending on terrain, and will be designed and constructed in accordance with the recommendations of the Avian Power Line Interaction Committee (APLIC).

Examples of site-specific conditions that will make it environmentally or economically advantageous to run portions of the collection system above ground are as follows:

- Steep terrain where the use of backhoes and trenching machines is not feasible or safe.
- Stream and wetland crossings where an aboveground line avoids or minimizes environmental impacts.
- Soil with low thermal conductivity, preventing adequate heat dissipation from the conductor.
- Rocky conditions that significantly increases trenching costs.
- An economic advantage for overhead construction on circuits into the substation.

Because detailed geotechnical studies have not yet been completed for the Project, it is not possible to determine whether aboveground collector cables will be advantageous; however, the design anticipates the use of some overhead lines.

2.9.3 Interconnection Transmission Line

Per W.S. §35-12-119(c)(i), electric transmission lines not exceeding 500 kV are exempt from the industrial siting process. However, per W.S. §35-12-119(d), Applicants shall furnish some information on exempt facilities. A description of the transmission line is presented below.

W.S. §35-12-119(a)(iii) – A description of the nature and location of the facility.

To connect the Project to the transmission grid, a new overhead 230-kV transmission line will be constructed.

W.S. §35-12-119(a)(iv) –Estimated time of commencement of construction and construction time.

Construction of the transmission line is expected to commence in second quarter of 2010. Transmission line construction is expected to be completed in early March 2011.

W.S. §35-12-119(a)(iv) – Estimated number and job classification, by calendar quarter, of employees of the applicant, or contractor or subcontractor of the applicant, during the construction phase and during the operating life of the facility. Estimates shall include the number of employees who will be utilized but who do not currently reside within the area to be affected by the facility.

Transmission line construction schedule will employ 45 non-local workers from the second quarter of 2010 through March 2011. No incremental permanent employees will be needed for O&M of the transmission line.

W.S. §35-12-119(a)(iv) – Future additions and modifications to the facility which the applicant may wish to be approved in the permit, AND ISC Rules and Regulations §7(d)(i) – The proposed on-line life of the industrial facility and its projected operating capacity during its on-line life and, for transmission lines exceeding one hundred fifteen thousand (115,000) volts included as part of the proposed industrial facility, a projection indicating when such lines will become insufficient to meet the future demand and at what time a need will exist to construct additional transmission lines to meet such demands.

Other than standard O&M activities, no substantial additions or modifications are planned for the transmission line. Poles or structure components will be regularly inspected and replaced as needed. The 230-kV transmission line is expected to remain operational for at least the life of the facility.

2.9.4 SCADA System

A SCADA system will be installed to collect operating and performance data from each WTG and provide remote monitoring and operation of the WTGs when appropriate. The WTGs will be linked to one or more central computers via a fiber optic network. Fiber optic cables for the SCADA system will be installed in the collector cable trenches. The SCADA cables will be installed at least 3 to 4 ft bgs. The host computer(s) is expected to be located in the substation building control room at the Project site. SCADA software will consist of applications developed by the turbine vendor and/or a third-party SCADA vendor.

2.9.5 Substation

Output from the Project site will be delivered to a 34.5/230-kV collector substation that is centrally located on the Project site. The collector cable system will link each WTG to the next in an electrical grid pattern and to the collector substation. The substation site will be surrounded by a graveled, fenced area with transformer and switching equipment and an area to park vehicles. The transformers will be oil cooled and insulated. The substation equipment may include circuit breakers, power transformer(s), bus and insulators, disconnect switches, relaying equipment, battery and charger, surge arrestors, alternating current and direct current (AC/DC) supplies, control building, metering equipment, SCADA provision, grounding, and associated control wiring. The substation facilities will conform to all applicable Wyoming regulations and standards. The substation will have approximately sixty dry cell type batteries. CFEP policy on disposal and/or recycling of these batteries is as follows: All batteries will be recycled in accordance with EPA and Wyoming Regulations. No on-site or off-site disposal of batteries is anticipated.

2.9.6 MET Towers

Up to six permanent meteorological towers will be constructed within the footprint of the Project site for the purpose of collecting meteorological data and forecasting conditions. The permanent met towers will be metal tube, self-supported structures. The towers will be 262 ft (80 m) in height and each will be marked per FAA regulations.

2.9.7 Operations and Maintenance Building

An O&M building will be constructed within the Town of Chugwater. The O&M building will be approximately 20,000 ft^2 and will include space for offices; bathroom and kitchen facilities; a break room; a storage area; and a garage for vehicle, turbine, and equipment maintenance. A fenced, graveled area for parking and storage will be provided. Power for the O&M building will likely be provided by Wheatland REA.

2.9.8 Lighting Specifications

The WTGs will be grouped in strings, and some of the WTGs will include installed aviation warning lights, as required by the FAA. The number of WTGs with lights and the lighting pattern of the WTGs will be determined in consultation with the FAA.

3. Construction, Operations, and Decommissioning

This section provides information on the construction, operations, and decommissioning of the Project. In addition to presenting general construction and operations procedures, schedules, and workforce estimates, this section also provides details on the required permits, relevant regulations, health and safety issues, and site decommissioning.

3.1 Commencement and Duration of Construction

Rule I Section 7(a)(iv) – An application for a permit shall be filed with the Division, in a form as prescribed by Council rules and regulations, and shall contain information on the estimated time of commencement of construction and construction time.

Initial feasibility studies, wind resource assessment and modeling, environmental surveys, preliminary facility design, and limited permitting activities were begun in 2008 and have been completed. Contingent upon obtaining approval from the Industrial Siting Council (ISC) and securing all other required permits; formal commencement of construction of the Project is planned for Second Quarter 2010. CFEP plans to begin road construction in the Second Quarter 2010. The construction schedule will last approximately 33 months. Transfer of title will occur at the Project site for all deliveries of material. Therefore the Project site should be used as the basis for taxation.

3.2 Construction Schedule

Rule I Section 7(e) – A statement that shall be a reasonable estimate of the calendar quarter in which construction of the industrial facility will commence, contingent upon the issuance of a permit by the Council.

CFEP would begin road construction in the Second Quarter of 2010 and proposes to commence all other Project construction activities as soon as all necessary permits have been obtained. Contingent upon approval from the ISC and obtaining all other required permits, CFEP anticipates formal commencement of Project construction activities in the second quarter of 2010.

A general overview of the construction processes associated with the Project is provided below. Section 3.8 provides a detailed description of the planned construction procedures.

Engineering and Final Design – Perform site geotechnical investigations, civil

engineering (roads and storm water), electrical engineering design (collection system, transmission line and substation), site surveying, and complete final structural engineering (foundations). Engineering and design activities were initiated in 2009 to support physical site construction.

Site Civil Construction – Establish site access and guard station; begin contractor mobilization on site; perform site grading; build site access roads; remove shrubs and vegetation from construction and lay down areas (primarily for fire safety); construct storm water control structures, and a weatherproof equipment and parts storage area (which may be either separate or combined with the O&M building); and complete WTG clearing and pad excavation.

WTG Foundations – Pour and cure concrete mud mat, install rebar for concrete tower foundations, and pour and cure concrete foundation.

Electrical Collection System – Construct electrical substation; build electrical collection system and substation with power-conducting cables and signal cables; interconnect circuits to substation; and perform shakedown tests.

Substation – Construct substation, install foundations, install transformer and other substation equipment, and energize collection system.

WTGs – Deliver WTG and components to each turbine pad, erect towers, install nacelles and rotors, install transformers, install permanent met towers (as necessary), and perform final commissioning of each WTG.

Site Cleanup and Restoration – Perform site restoration, cleanup, and contractor demobilization.

Additional temporary activities will include installation of on-site temporary offices and sanitary facilities.

The current construction schedule for the Project is summarized in Figure 3-1.

Figure 3-1 Chugwater Flats Energy Project Phase I Preliminary Construction Schedule

			2010											2011								
Activity Name	**Start Date**	**Finish Date**	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Project Kick Off	4-Apr-2010	4-Apr-2010																					
Engineering Design	5-Oct-2009	3-May-2010																					
Geotechnical Evaluation	5-Oct-2009	7-Jun-2010																					
Order 116 GE Turbines	25-Jan-2010	25-Jan-2010																					
Fabricate 116 GE Turbines	25-Jan-2010	7-Jun-2010																					
Prepare/Submit to ISA DIV WY - ISA Permit	21-Dec-2008	4-Jan-2010																					
Approve - ISA Permit	4-Jan-2009	12-Apr-2010																					
Install Access Roads for WTG's	1-Feb-2010	16-Apr-2010																					
Survey and Staking	16-Apr-2010	7-May-2010																					
Construction of Foundations for WTG's	12-Apr-2010	30-Sep-2010																					
Install Collection System	12-Apr-2010	30-Sep-2010																					
Deliver WTG's 10 units every week	7-Jun-2010	16-Aug-2010																					
Erect WTG's 116 units	14-Jun-2010	5-Oct-2010																					
Mechanical Completion WTG's	21-Jun-2010	12-Oct-2010																					
Install Substation Equipment	9-Aug-2010	14-Sep-2010																					
Energize Substation Chugwater Flats Energy		14-Sep-2010																					
WTG Commissioning	15-Sep-2010	19-Nov-2010																					
Substantially Complete Commissioning		19-Dec-2010																					
Final Completion Interconnect		19-Dec-2010																					
Begin Operations		20-Dec-2010																					
Begin Phase II		1-Jan-2011																					

3.3 Construction Completion Schedule

Rule I Section 7(f) – A statement that shall be a reasonable estimate of the maximum time period required for construction of the industrial facility and an estimate of when the physical components of the industrial facility will be ninety (90) percent complete, and the basis for that estimate.

As detailed in Figure 3-1, erection and commissioning of the WTGs for Phase I is anticipated to be completed in December 2010. Therefore, Phase I is projected to be 90-percent complete in the fourth quarter of 2010. A notice of substantial completion will be published in local newspaper/s to facilitate timely contractor payment.

3.4 Construction Workforce Estimate

Rule I Section 7(v) – Estimated number and job classifications, by calendar quarter, of employees of the applicant, or contractor or subcontractor of the applicant, during the construction phase and during the operating life of the facility.

The estimated number of construction workers by month and calendar month is shown in Table 3-2. CFEP anticipates that the on-site construction workforce will vary from a low of 54 to a high of 194 construction trades people during the peak of construction activities in the summer of 2011. Over the 33-month construction

period, there would be a monthly average of approximately 130 full-time equivalent workers on site. Table 3-2 presents the workforce personnel breakdown.

Table 3-1 Onsite Construction Workforce Schedule

Month and Year	Geotechnical Investigations	Surveying	Civil Construction	Electrical Construction	WTG Tower Erection	Field/ Main Office	Turbine Supplier Onsite Personnel	Grand Total
Apr-10	14	8	30	10	2	12	2	**78**
May-10	14	6	40	30	28	12	2	**132**
Jun-10	14	3	60	30	30	12	2	**151**
Jul-10	2	3	60	30	40	12	2	**149**
Aug-10	2	3	30	30	40	14	4	**123**
Sep-10	2	3	25	30	40	14	4	**118**
Oct-10	2	3	20	30	40	14	4	**113**
Nov-10	2	3	20	30	40	14	4	**113**
Dec-10	2	3	20	30	40	14	6	**115**
Jan-11	16	12	10	5	6	6	2	**115**
Feb-11	16	12	10	5	4	6	1	**54**
Mar-11	16	12	30	15	4	8	4	**89**
Apr-11	10	6	60	35	20	14	4	**149**
May-11	10	6	60	35	40	14	4	**169**
Jun-11	10	6	60	40	60	14	4	**194**
Jul-11	10	6	60	40	60	14	4	**194**
Aug-11	4	6	50	40	60	14	4	**178**
Sep-11	2	6	30	40	40	14	4	**136**
Oct-11	2	6	25	40	40	14	4	**131**
Nov-11	2	6	25	40	20	14	8	**115**
Dec-11	2	6	25	35	20	14	8	**110**
Jan-12	16	12	10	5	6	6	2	**57**
Feb-12	16	12	10	5	4	6	1	**54**
Mar-12	16	12	30	15	4	8	4	**89**
Apr-12	16	6	60	35	20	14	4	**155**
May-12	16	6	60	35	40	14	4	**175**
Jun-12	10	6	60	40	60	14	4	**194**
Jul-12	10	3	60	40	60	14	4	**191**
Aug-12	4	3	30	40	60	14	4	**155**
Sep-12	2	3	25	40	40	14	4	**128**
Oct-12	2	3	25	40	40	14	4	**128**
Nov-12	2	3	25	40	20	14	8	**112**
Dec-12	2	2	10	35	20	14	8	**91**

3.4.1 Local In-State Contractor Hiring

W.S. 35-12-109(a)(xviii) – A brief description of the methods and strategies the applicant will use to maximize employment and utilization of the existing local or in-state contractors and labor force during the construction and operation of the facility.

CFEP solicits local contractors for screening and sourcing by the general contractor and requires its general contractor to use local workers to the extent practicable. Additionally, employment opportunities for local workforce during both construction and operations will be posted in the local Wyoming Department of Workforce Services, Wheatland Workforce Center, 956 Maple Street #6, Wheatland, WY 82201.

3.4.2 Local Workforce

It is assumed that the proportion of local workers filling job openings will vary by trade and skill level. CFEP estimates the following proportions of local construction workforce may be potentially employed by the Project: 100 percent for geotechnical investigation, 100 percent for surveying, 50 percent for civil construction, 50 percent for electric construction, 0 percent for WTG erection, 100 percent for field office staff, and 0 percent for the turbine supplier staff.

Based on these workforce assumptions, during the construction period of 33 months, the Project would employ as many as 84 local workers and the average monthly local employment over the construction period would number 60 jobs.

Non-Local Workforce

Based on the type of labor required to complete construction contracts on the wind energy facility, the majority of the resulting construction workers are likely to be non-local and enter the region.

3.5 Operations Workforce Employment

Rule I Section 7(v) – Estimated number and job classifications, by calendar quarter, of employees of the applicant, or contractor or subcontractor of the applicant, during the construction phase and during the operating life of the facility.

A long-term benefit of the Project comes from the permanent employees who will operate and maintain the wind energy facility. Upon completion, operation of the Project will require 16 to 17 full-time employees in Phase I of the operation. It is anticipated that the Project will have an initial operations workforce in place in late 2010. Employees will be full-time over the calendar year and the anticipated life of the Project. Operation workforce estimates for Phase I, Phase II and Phase III combined will total approximately 84 full-time permanent employees.

3.6 Permits Required for Construction

It is expected that all permits required for construction will be obtained prior to the initiation of construction activities. The anticipated Federal and State permits required for construction are listed by regulatory agency in Table 3-3.

Table 3-2 Federal and State Permits Required for Construction

Agency	Permit/Decision	Status	Anticipated Permit Date
Federal			
FAA	Notice of Proposed Consturction or Alteration (7460-1 form)	Prior to Construction	1-Jul-10
EPA	Spill Prevention Control and Counterermeasure Plan (SPCC) *Construction*	Will prepare and implement on site prior to construction	1-Apr-10
EPA	SPCC *Operations*	Will prepare and implement on site prior to operations	1-Dec-10
NTIA	Impacts to Telecommunication Systems and RADARs	File prior to Construction	1-Apr-10
FCC	Licensed Microwave Study	File prior to Construction	1-Apr-10
Wyoming			
WDEQ	WYDEQ Section 109 Permit Application	Submit application Jan 4, 2010	4-Apr-10
WYDOT	Port of Entry	Prior to Construction	1-Mar-10
WYDOT	Permit for Oversized/Overweight Loads	Prior to Construction	1-Mar-10

3.7 Laws and Regulations

CFEP will fulfill informational requirements of the regulations and the ISA by also obtaining required permits under the jurisdiction of other local, state, and federal regulatory agencies. The primary laws, rules, and regulations that govern construction of this Project are summarized in this section.

3.7.1 Federal

Clean Water Act, 33 United States Code (USC) § 1344, Section 404; 40 Code of Federal Regulations (CFR) 231 (authority), 233 (state); 33 CFR 320-330)— establishes the requirements for Nationwide Permits administered by the U.S. Army Corps of Engineers (USACE).

Clean Water Act, 40 CFR 122-124, Subchapter D—establishes the requirements of the National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges from municipalities, industries, and construction operations.

Clean Water Act, Oil Pollution Act Spill Prevention Control and Countermeasures Regulations, 33 USC 1314; 33 CFR 320, 323; 40 CFR 230, 33 USC 1341(a), 40 CFR Part 112—establishes procedures and requirements addressing when a Spill Prevention, Control and Countermeasures (SPCC) Plan is required and what it entails.

Notice of Proposed Construction or Alteration, 14 CFR 77—establishes the requirements for notification to the FAA for any structures over 200 ft tall that may affect the National Airspace System under provisions of 14 CFR 77.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947, as amended by the Federal Environmental Pesticide Control Act (FEPCA) of 1972, 7 USC s/s 136 et seq. (1972); 40 CFR Parts 150-189—establishes methods and standards of control of herbicides and pesticides, including personnel certified to apply herbicides.

3.7.2 State of Wyoming

Wyoming Air Quality Rules and Regulations, Chapters 1-14, in accordance with the Wyoming Environmental Quality Act, W.S. § 35-11-101 et seq.—establishes air quality standards in the State of Wyoming.

Board of Land Commissioners Rules and Regulations, Chapters 3 and 5, promulgated under the authority of W.S. § 36-2-107 and W.S. § 36-5-114 through W.S. § 36-5-116.—establishes general standards when leasing State land in Wyoming under a Special Use Permit.

Hazardous Waste Management Rules and Regulations, Chapters 1-14, in accordance with the Wyoming Environmental Quality Act, W.S. § 35-11-101 et seq.—a joint rule of the Solid Waste Management Program, the Water Quality Division, and the Air Quality Division, which establishes hazardous waste management standards in the State of Wyoming.

Industrial Siting Council Rules and Regulations, Chapters 1-2, in accordance with the Environmental Quality Act, W.S. § 35-12-101-119—establishes industrial siting regulations in the State of Wyoming.

Solid Waste Management Rules and Regulations, Chapters 1-4, 6-10, and 15, in accordance with the Wyoming Environmental Quality Act, W.S. § 35-11-101 et seq.—establishes solid waste management standards in the State of Wyoming.

Specific sections of the act that provide authority for this regulation include W.S. § 35-11-102, W.S. § 35-11-109 and Article 5, Solid Waste Management, W.S. § 35-11-501 et seq.

Surface Water Quality Standards Rules and Regulations, Chapters 1-12, promulgated pursuant to W.S. § 35-11-101 through 1507, specifically 302 (a)(i) and 302 (b)(i) and (ii)—establishes surface water quality standards.

Department of Transportation Rules and Regulations, Chapters 1-15, in accordance with practices and procedures, which are promulgated by authority of W.S. § 31-18-104(vi) and W.S. § 31-18- 303—establishes transportation requirements for issues such as oversize/overweight vehicles in the State of Wyoming.

Wyoming Weed and Pest Control Act of 1973, W.S. § 11-5-101 through 11-5-119—establishes means for controlling designated weeds and pests.

3.7.3 County

A Platte County Special Use Permit, a Platte County Zoning Permit, and a Platte County road use permit will be required for construction.

3.8 Construction Procedures

The general construction contractor and subcontractors will prepare the construction site; complete site civil work including access roads; install WTG pads and erect GE WTGs; install appurtenant linear facilities; oversee construction; and complete final cleanup and restoration of the turbine crane pads, widened access roads, and other temporary disturbance areas. Heavy construction equipment used to construct the Project will include earth-moving equipment, cranes, and support staff light trucks. Table 3-4 details the general equipment that is likely to be used for the Project.

Table 3-3 List of General Construction Equipment for Project

Equipment	Construction Use
Motor Graders	Road and Pad Construction
Water Truck	Compaction, Erosion, and Dust Control
18 Wheel Semi-Tractors	Turbine Component Delivery
Truck Mounted Drill Rigs	Drilling Soil Test Bore Holes
Concrete Trucks and Pumps	Pouring Tower and Other Structure Foundations
Conventional and Small Cranes	Off Loading Equipment Onsite, Set Tower Components
Bulldozers	Road and Pad Construction
Roller/Compactors	Road and Pad Compaction
Gravel Truck Haulers	Hauling and Placement of Road Aggregate
Heavy and Intermediate Cranes	Off Loading Equipment Onsite, Erecting Towers, Nacelles, and Rotors
Pick Up Trucks	General Use by Construction Personnel
All Terrain Vehicles	Site Access
Rough Terrain Forklift	Lifting Equipment

3.8.1 Site Civil Work/Preparation

Prior to breaking ground, the construction work area will be surveyed and clearly demarcated with stakes and flagging. Access roads, WTG locations, and other site locations will be grubbed, cleared, and prepared for site activities. Roads are expected to be constructed in advance of other Project features, depending on the timing for receipt of necessary permits. Grading will be minimized and all topsoil will be preserved, to the extent practicable. Excavated topsoil will be stockpiled alongside the excavated area for replacement after construction or as agreed with the landowner.

The tower sections, rotor blades, and other WTG components are intended to be delivered directly to the WTG locations using the completed access roads for on-site assembly.

3.8.2 Access Roads and Crane Pads

Access roads have been located to minimize disturbances, maximize transportation efficiency, and avoid sensitive resources and unsuitable topography to the extent practicable. Existing roads will be used where practicable and will be built to Project road design specifications (e.g., some areas may need to be widened to accommodate delivery of WTG equipment or movement of construction equipment). New roads will be constructed according to a licensed engineer's design specifications. Raw materials used for access road and crane pad preparation will primarily consist of aggregate, such as gravel or crushed rock, and water for dust control and road compaction. In conjunction with the access road construction, crane pads will be established at each WTG location. The crane pads will provide enough space and support for placement of a large crane to install the tower sections, nacelle, blades, and other components. The crane pads also provide access to the area for maintenance, if

necessary. When construction is complete, an area approximately 40 ft by 50 ft will be maintained for O&M purposes.

3.8.3 Tower Foundations

After road and pad construction is complete, crews will begin installation of the tower foundations immediately adjacent to the crane pads. Tower foundations will be constructed according to a licensed engineer's design specifications; the design engineer will also prepare a special inspection report for each foundation excavation and pour. The concrete foundations will be excavated, a mud mat poured and cured, forms set, rebar installed, and the concrete poured and cured to create the foundation. Blasting is not anticipated; however, if necessary due to substrate conditions, it will be performed by state-licensed explosives experts only in accordance with a Blasting Plan. Construction dewatering is also not anticipated due to groundwater depths in the Project area; however, if necessary, CFEP will obtain a Temporary Discharge Permit from the WYDEQ.

The tower foundations for the GE WTGs will require approximately 300 to 400 cubic yards (yd^3) of concrete. The Project will source concrete locally and aggregate for the concrete will also be sourced locally. The aggregate source will be based upon suppliers' ability to provide the engineer's specified aggregate and through local companies with nearby quarries. The local plant operator will use existing water rights and/or permits to provide water for the concrete foundations.

3.8.4 Tower Assembly

After the concrete foundations are in place and cured, the WTG towers, nacelles, and blades will be delivered to each WTG location in the order of assembly. Large cranes will be brought onsite to lift the multiple tower sections, nacelle, and three-bladed rotor into place. The first step will be to lift and secure the down tower electrical assembly to the foundation. Next, the first tubular tower base section will be lifted over the down tower assembly and secured to the foundation. Subsequent tower sections will be connected to the base tower section. The nacelle, rotor, and other WTG equipment will then be delivered to the turbine pad location. Blades will be bolted to the rotor hub, lifted to the central hub by a construction crane, and connected to the nacelle.

3.8.5 Electric Collection Lines and Communication Cables

Underground (or overhead, if necessary) electric collection lines and communication cables will be installed adjacent to and connecting with WTG arrays. Cables will be direct buried 3 to 4 ft by a special-purpose tool and backfilled or plowed. In certain environmental situations (e.g., challenging

topography, soils, or across roads), these cables may be installed above ground. Where possible, lines will be installed adjacent to Project roads. Disturbed areas will be contoured and reseeded with a designated reclamation seed mixture, in consultation with the reclamation contractor and in accordance with any landowner requirements.

3.8.6 Substation

The Project collector substation will be cleared and graded. The substation will occupy an area of approximately 10 acres. After site preparation, transformer pads, oil spill containment structure, and other foundations will be excavated, forms set, rebar installed, and the concrete poured and cured to create the foundation. Electrical and other equipment will be transported to the site by truck and installed with appropriate construction equipment. Following construction, a security fence pursuant to prudent and adopted utility practices will surround the substation.

3.8.7 Transformers

Pad-mounted transformers will be located within approximately 20 ft of the base of each turbine tower. The approximately 47-ft^2 steel-transformer box housing the transformer circuitry will be mounted on an approximately 54-ft^2 pad or vault made of fiberglass or concrete. Transformers will contain non-polychlorinated biphenyl (PCB) mineral oil and will be sealed.

3.8.8 Testing

After all WTGs are erected and electrical collection systems are interconnected, all systems, controls, and safety equipment will be calibrated and tested before being placed into service. Qualified technicians, turbine experts, and electricians will test and inspect all WTG components, transformers, communications systems, substation and switchyard, and transmission systems to ensure that they comply with required design specifications and are working properly. Each WTG and associated piece of equipment will be tested and inspected upon individual completion. All tests will be conducted and problems corrected prior to final interconnection commissioning.

3.8.9 Cleanup and Reclamation

After construction, temporarily disturbed areas (e.g., crane pads, lay down areas, and collector lines) will be restored similar to pre-construction conditions. Disturbed areas will be contoured and reseeded with a designated reclamation seed mixture, in consultation with the reclamation contractor and in accordance with any landowner agreement requirements.

3.9 Operations and Maintenance Procedures

Rule I Section 7(d) – A description of the operating nature of the proposed industrial facility, the expected source and quantity of its raw materials, and energy requirements.

WTGs are used to generate electricity from the kinetic power of the wind. No additional raw materials are required to operate the WTGs. Minimal electricity will be required to operate the Project. Electricity will be required for the O&M building; facility lighting, and the station service needs for the Project and is expected to be supplied by Wheatland REA.

3.9.1 Anticipated Operation Life

Rule I Section 7(d)(i) – The proposed on-line life of the industrial facility and its projected operating capacity during its on-line life and, for transmission lines exceeding one hundred fifteen thousand (115,000) volts included as part of the proposed industrial facility, a projection indicating when such lines will become insufficient to meet the future demand and at what time a need will exist to construct additional transmission lines to meet such demands.

The economic life of the Project is anticipated to be 40 years. The life of the project will be extended with new technology as it becomes available in the future.

3.9.2 Facility Operations

Rule I Section 7(d)(ii) – Products needed by facility operations and their source.

After construction is complete, on-site personnel will operate and maintain all components of the Project, including the substation.

3.9.2.1 Wind Turbine Generators

Routine maintenance of the WTGs will be necessary to maximize performance and detect potential malfunctions. O&M procedures will be established that define specific routine WTG maintenance and inspection activities in accordance with the WTG manufacturer's recommendations. Scheduled maintenance will be performed approximately every 6 months on each WTG. On average, each WTG would require 40 to 50 hours of scheduled mechanical and electrical maintenance per year. O&M personnel will perform routine maintenance, including periodically replacing lubricating fluids, checking parts for wear, and recording operating parameters. All roads, pads, and trenched areas will be inspected regularly and maintained to minimize erosion. The O&M staff will

perform most repairs with the assistance of contracted personnel, as needed.

Each WTG will be monitored continuously by a SCADA system that communicates major aspects of operation through communication lines to the O&M staff and a 7-day-per-week, 24-hour-per-day facility. Alarm systems will be triggered if operational characteristics fall outside set limits. Each WTG has an automatic braking system to stop the blades in the event of malfunction or excessive wind speed, including a battery back up in case a WTG is disconnected from the grid. Any problems will be reported promptly to on-site O&M personnel for correction.

3.9.2.2 Operations and Maintenance Buildings

An O&M building will be constructed for the Project. The O&M building will be approximately 20,000 ft^2 and will include office space for several contractors; bathroom and kitchen facilities; a break room; a storage area; a garage for vehicle, turbine, and equipment maintenance; and the SCADA equipment. A fenced, graveled area for parking and storage also will be provided. This building will be located in the town of Chugwater.

3.9.2.3 Transformers and Substations

Substations, large step-up transformers, and pad-mounted transformers will be maintained as part of normal O&M activities and will be accessed from the private site roads. In the event of transformer or other device failure, replacement of this equipment could be accomplished from the access roads.

3.9.2.4 Electric Collection Line and Communication Cable

Periodic maintenance of underground (or overhead, if necessary) collection lines and communication cable will be required during the life of the Project. Maintenance activities will be conducted pursuant to prudent utility practices. Maintenance disturbance associated with all buried lines would typically be limited to an approximate 25- to 50-ft-wide construction corridor associated with each proposed linear disturbance. All electrical terminations will occur above ground in appropriate weather-tight electrical enclosures to facilitate ease of maintenance. Underground collection lines are relatively maintenance free, but maintenance will be performed as needed.

3.10 Worker, Environmental, and Facility Protection

Pursuant to ISD requirements, CFEP will develop a Written Compliance Plan to effectively meet the Section 109 Permit Conditions and to ensure compliance

with voluntary commitments made by CFEP in the permit application, during testimony, and via agreements with local governments. The Plan will support the construction and operation of a safe, environmentally compliant, renewable energy project that is constructed and operated in compliance with federal, state, and local regulations and in accordance with the ISA permit conditions. This Plan will provide a comprehensive framework for site-specific environmental procedures and requirements. Throughout the duration of the construction and operation of the Project, this Plan will be reviewed and revised for implementation, effectiveness, and applicability.

3.10.1 Environmental, Health, and Safety Plan

CFEP will prepare a site Environmental, Health, and Safety (EHS) Plan that outlines overall expectations for EHS performance on the Project site for all employees, contractors, and subcontractors.

3.10.1.1 Construction

The EHS Plan will require that the general contractor and the turbine supplier prepare specific plans and procedures to be approved by CFEP and put in place prior to commencement of construction. The EHS Plan will cover all work to be performed by the general contractor, turbine suppliers, and all site subcontractors during construction, operation, and decommissioning of the Project. In addition, all site personnel will comply with all safety requirements of the Occupational Safety and Health Administration (OSHA), State of Wyoming, and local ordinances, as applicable.

The general contractor will be required to maintain adequate first-aid facilities throughout the construction period. Specifically, prior to construction, the general contractor and turbine supplier will provide and maintain for the protection of their employees such safety equipment, guarding, and personal protective apparel as is prescribed for safety practices or as required by any law, ordinance, rule, or the exercise of ordinary prudence for the type of work being performed. Each contractor with more than 20 people on site will be required by CFEP to have a designated EHS professional on site. Lastly, a CFEP construction management representative will oversee the construction phase to monitor the health and safety performance of the general contractor, supported by a designated CFEP EHS professional.

3.10.1.2 Operations

Upon reaching commercial operation, the Project will be subject to CFEP's EHS Plan, including specific programs and procedures applicable to the company's policy. These policies will be deployed and implemented to ensure that EHS Plan expectations, roles, and responsibilities are well documented and

understood by site employees, contractors, and visitors. Components of the EHS Plan include emergency response, training, environmental requirements, contractor management, and comprehensive safety programs, including wind-specific risks such as tower climbing and rescue, severe weather, confined space entry, lockout tag out, electrical safety, and other site- and equipment-specific requirements. It is CFEP's intent that all wind projects implement the appropriate programs, procedures, and training that result in a sustained zero injury and illness culture.

The CFEP EHS Plan will cover all work to be performed by all site contractors and CFEP employees during operation of the Project. A CFEP Site Manager will oversee the operations phase to monitor the health and safety performance of subcontractors and CFEP employees.

3.10.2 Non-Hazardous Waste

3.10.2.1 Construction

A variety of non-hazardous, inert construction wastes are typically generated in small quantities during wind energy project construction. The major solid waste types are concrete waste from turbine foundation construction and wood waste from forms used for concrete construction. Additional wastes could include erosion control materials, such as straw bales and silt fencing, and packaging materials for turbine parts and electrical equipment. The waste is typically accumulated on site in dumpsters and/or drop boxes until hauled away to a licensed landfill. Construction materials appropriate for recycling (e.g., metals, wood, etc.) will be stored in appropriate bins and recycled to the extent possible. No significant impacts to local solid waste disposal sites or services are expected from the amount of wastes generated by the Project given its proposed size.

3.10.2.2 Operations

Solid waste generation during Project operations will be minimal, on the order of one dumpster per week; therefore, no significant impacts to local solid waste facilities are expected. The only other source of solid waste will be incidental waste from repair, maintenance, and replacement of equipment, as necessary. Disposal of materials on site will be conducted in accordance with all applicable regulations.

3.10.3 Hazardous Wastes and Materials

Hazardous substances and wastes are subject to strict handling, storage, disposal, and transportation laws at the federal, state, and local levels. It is the intention of CFEP to properly manage all hazardous materials and waste streams associated with the Project in accordance with those laws. The sections below

describe hazardous materials and wastes anticipated at the site and best practices for properly managing those materials.

Construction, operation, and maintenance of the Project would result in the temporary use and storage of small amounts of hazardous materials. Such materials would mostly include fuels, lubricants, and hydraulic fluids associated with construction equipment, as well as cleaning and maintenance compounds.

3.10.3.1 Construction

It is expected that small amounts of hazardous waste may be generated during Project construction, resulting in a conditionally exempt small quantity generator status for the Project. Potential hazardous waste streams would be associated with spent aerosol cans and other construction-related solvent use. It is estimated that this waste generation would be on the order of dozens of cans and potentially several gallons of solvent waste. No underground storage tanks are currently located on site or proposed for the Project. The Project is subject to NPDES requirements for the protection of surface water quality. Conditions of approval for the Project will require the implementation of NPDES Best Management Practices (BMPs) during construction, including provisions that construction equipment be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels.

3.10.3.2 Operations

Operation of the Project will not result in the generation of regulated quantities of hazardous wastes. Because no fuel is burned to power the WTGs, no spent fuel, ash, sludge, or other process wastes will be generated. The primary type of waste generated by operation of the Project will be municipal solid waste generated at the O&M facility consisting of typical office wastes (e.g., paper, cardboard, food waste, etc.). This waste will be stored in a dumpster until it is hauled to the appropriate disposal facility. In addition, small amounts of waste associated with site maintenance will be generated, including wood pallets, oily debris, etc. These wastes will be managed according to regulatory and CFEP requirements.

Periodic changing of lubricating oils and hydraulic fluids used in the individual WTGs will produce small quantities of non-hazardous waste fluids. Because they need to be changed only infrequently, and on an individual WTG basis rather than simultaneously, these waste fluids will be generated in small quantities. The waste fluids will be stored for short periods of time in appropriate containers at the O&M facility for collection by a licensed service for recycling or disposal. Procedures for collecting, storing, and transporting these materials for recycling or disposal is described in detail below.

The replacement fluids will be stored on a concrete surface inside the O&M facility and will be surrounded by a catch-basin berm or trough to trap any leaks or spills. Specific details of the volumes of the containment structure(s) will be addressed in the operations SPCC plan.

The WTGs typically use the following lubricating oils and greases: Mobilux 2, Mobilith 5HC 460 grease, Hydro TL 15, and Tribol 1510/320 or equivalents. None of these contain any compounds listed as hazardous by the EPA. These oils and greases are used in moderate quantities (approximately 100 gallons per turbine) and are contained entirely within the spill trap, nacelle, and tower to protect accidental leakage. Lubricating oil levels are continuously monitored by a computer data collection system, manually inspected quarterly, filled as needed, and changed every 2 years. Spent fluids will be recycled using a certified waste contractor. The oil change will be performed up-tower, where the nacelle will contain any accidental spills.

Electrical pad mount transformers located next to each turbine will contain approximately 500 gallons of cooling mineral oil and will not contain PCBs. Inspection of each transformer will be performed on a regular basis and after any accident or seismic event that could result in transformer damage. Operational failure resulting from a loss of oil in the transformer would be detected via grid monitoring, and response actions would rapidly ensue.

There are no suspected or known hazardous waste contamination sites within or adjacent to the proposed Project area. Given the history and current characteristics of the Project site, it is unlikely that any contamination would be encountered. Therefore, no significant impact from former activities at the property should occur.

3.10.4 Spill Prevention, Control, and Countermeasure Plans

The Applicant is required to establish and maintain a SPCC Plan for construction and operations under the recently revised regulations pertaining to 40 CFR 112. Under this Plan, a procedure and the required equipment would be provided and maintained by the owner or contractor to respond in the event of a spill. All use of hazardous materials, including storage and disposal, would be in compliance with site procedures. Therefore, impacts relative to the release of hazardous substances as a result of Project construction and operations should be insignificant.

Several petroleum products will be used in the construction and operation of the facility. During transport, handling, and use, there is a possibility of a spill. Potential sources for a spill are the fuel and lubricating oils from construction

vehicles and equipment, the mineral oil used to fill the substation transformer and pad mount transformers, and other gear oil and hydraulic fluids associated with the WTGs. The construction contractor will be responsible for training its personnel in spill prevention and control and, if an incident occurs, will be responsible for containment and cleanup.

Quantities of used or generated oil during construction that will be stored at the site will be handled with the following procedure: Accumulate approximately 100 gallons of used oil and then arrange for off-site recycling or other disposal option. These oils will be stored in sealed containers on top of a concrete floor to prevent leakage.

Quantities of used or generated oil during operations that will be stored at the site will be handled with the following procedure: Approximately 12-16 drums of various oils, hydraulic fluids, and used oil and fluids will stored at the site for maintenance purposes. Only 2-3 of these drums will contain used oil. Once sufficient used fluids are accumulated, they will be recycled or disposed of off-site. These oils and fluids will be stored in sealed containers on top of a concrete floor to prevent leakage.

The types of products to be used, as well as the SPCC Plan that will be implemented, are described below.

3.10.4.1 Construction

Fuel – During construction, fuel trucks will be used for refueling of vehicles, fuel storage tanks, and equipment on site. The fuel trucks will be properly licensed and will incorporate features in equipment and operation, such as automatic shut-off devices, to prevent accidental spills. Fueling of large, heavy construction equipment such as cranes and earth-moving equipment will occur on site where the equipment is located. The fuel truck will drive to the equipment. Some construction vehicles, such as pick up trucks, will be fueled in town at gas stations. Any spills will be addressed in accordance with the SPCC Plan that will be developed for the construction phase of the Project**.**

The risks associated with driving fuel trucks along gravel roads at the Project site are low. The road slopes will be shallow enough to allow the much larger WTG delivery trucks access to all WTG strings, and therefore can safely accommodate fuel trucks as well. The roads are designed for wide loads and can accommodate large turbine erection cranes. Potential risks will be additionally reduced by using dedicated fuel-delivery trucks driven by professional, appropriately licensed drivers and by ensuring adherence to the Project site speed limits. A fuel tanker accident would trigger activation of the SPCC Plan. This Plan will include a description of procedures that will be followed in the event of a fuel tanker spill and will contain a list of equipment that will be maintained on site for spill

response emergencies.

Lubricating oils – Lubricating oils used during construction will mostly be contained in the vehicles and equipment for which they are used. Small quantities of lubricating oils may also be stored in appropriate containers at the construction staging area located at the site of the O&M facility. The details of storage and containment of lubricating oils and other materials at the construction staging area will be addressed in the SPCC Plan. Appropriate measures will be taken to ensure these materials are not spilled. If a spill does occur, it will be promptly cleaned up and reported as required to the proper agencies.

Wind Turbine Fluids – Each turbine model has different specifications for lubricating oil and hydraulic fluid quantities. There are two main types of fluid in a WTG: lubricating oil for the gearbox (typically a synthetic lubricating oil) and hydraulic oil for operating the blade pitch system, yaw mechanism, and brakes.

The GE WTGs are equipped with sensors to automatically detect loss in fluid pressure and/or increases in temperature, which enable them to be shut down in case of a fluid leak, as well as fluid catch basin and containment systems to prevent any accidental releases from leaving the nacelle. Based on the limited quantities of fluids contained in the WTGs and the leak detection and containment systems engineered into their design, the potential for an accidental spill from WTG malfunction is extremely limited. Furthermore, any accidental gear oil or other fluid leaks from the turbines will be contained inside the turbine towers, which are sealed around the base. Both the nacelles and the towers incorporate adequate containment to capture any fluids in the event of a leak or spill. Specific details of the volumes of the containment structure(s) will be addressed in the SPCC Plan.

Transformer Mineral Oil – The Project's collector substation will contain twelve main power transformers. Each transformer is delivered empty and will be filled with mineral oil on site. Each substation transformer will contain up to 13,500 gallons of mineral oil for cooling. The main transformers(s) will be filled and tested as part of the commissioning process. The transformer tanker truck will be properly licensed and will incorporate several special features in equipment and operation, such as automatic shut off devices, to prevent accidental spills. In addition, the filling of the transformers will be completed in accordance with site construction SPCC requirements. The transformers are designed to meet stringent electrical industry standards, including containment tank weldment and corrosion protection specifications.

The substation transformers will be equipped with an oil-level sensor that detects any sudden drop in the oil levels and sends an alarm message to the central SCADA system. Finally, the substation transformers are surrounded by a

concrete berm or trough to ensure that any accidental fluid leak does not result in any discharge to the environment. The substation transformers will be surrounded by a containment berm or trough.

Each WTG has a pad-mounted transformer located near its base. These transformers contain mineral oil that acts as a coolant. Each pad-mounted transformer would contain up to 500 gallons of mineral oil and will be filled at the factory, not at the site during construction. The transformer is designed to meet stringent electrical industry standards, including containment tank weldment and corrosion protection specifications. Pad-mounted transformers do not typically incorporate a containment structure, as the volume of mineral oil contained in them is much smaller than in the substation transformers and the risk of a spill is minimal. The SPCC Plan will address prevention and cleanup of any potential spills of mineral oil during filling, transport, installation, or operation of transformers.

3.10.4.2 Operations

Operation of the Project will not require the use of substantial quantities of fuel or other materials that could cause a spill or other accidental release. Project operations will not require the use of a permanent fuel storage tank, as fuel use during operations is limited to maintenance vehicle fueling that will be done at existing licensed gas stations off site.

The potential for accidental spills of oils or lubricants during Project operations is minimal, as the only materials used during Project operations that present any potential for accidental spills are mineral oils, lubricating oils, and hydraulic fluids used in the WTGs and transformers. Any loss of oil or hydraulic fluids in the WTGs would most likely be contained within the nacelle or tower and would not reach soil.

Turbine Fluid Replacement – Turbine fluids levels are checked periodically and must be replenished or replaced on an infrequent basis (generally less than once per year and sometimes only once every 5 years.) When replacing these fluids, O&M staff will climb to the nacelle and remove the fluids in small (typically 5-gallon) containers and lower them to the ground using a small maintenance crane built into the nacelle itself. The containers then will be transferred to a pickup truck for transport to the O&M facility for temporary storage (typically less than 1 month) before being picked up by a licensed transporter for recycling. Replacement fluids are added in the same method, but in reverse. Small quantities of replacement fluids, typically no more than a few 50-gallon drums of lubricating oil and hydraulic oil, may be stored at the O&M facility for replenishing and replacing spent fluids. These fluids will be stored indoors in appropriate containers. All operations staff will be trained in appropriate handling and spill-prevention techniques to avoid any accidental spills. Because only small

quantities of fluids are transported, added, or removed at any one time and are stored for short periods of time, the potential for a large accidental spill during routine maintenance is extremely limited.

The substation transformers have a specifically designed containment system, including a full perimeter containment trough large enough to hold all of the oil from the transformer in the event of a transformer reservoir breach.

3.10.5 Storm Water Pollution Prevention

3.10.5.1 Construction

There will be a certain amount of disturbance of surface soils and minor excavation into weak bedrock associated with construction of the facilities. A Storm Water Pollution Prevention Plan (SWPPP) will be developed with the Notice of Intent (NOI) for the required Wyoming Pollution Discharge Elimination System (WYPDES) General Storm Water Construction Permit and implemented to minimize soil erosion during construction of the Project. Therefore, the contractor will implement BMPs during construction of the Project to ensure that erosion will be minimized and other adverse impacts on area soils will not occur. Other BMPs are discussed in more detail under Section 7. Lastly, the Project will be designed with proper erosion protection and culverts in order to minimize or eliminate the potential for downstream sedimentation that could affect aquatic resources or damage to Project facilities during construction and operation.

3.10.5.2 Operations

The Project will be designed with proper erosion protection and culverts in order to minimize or eliminate the potential for damage to Project facilities during operation or result in downstream sedimentation that could affect aquatic resources. Culverts and roads will be designed and constructed in accordance with or above industry standards for their intended uses and to ensure regulatory compliance. During operation of the Project, a designated and qualified member of the operations staff will implement regular compliance monitoring and maintenance activities. Inspections and maintenance activities during operations will ensure that erosion, stream sedimentation, or impacts to or from soil resources or geologic hazards are prevented or addressed immediately if they occur.

3.10.6 Security

3.10.6.1 Construction

Security is primarily a function of controlled access to the Project area and lockout provisions to major equipment and controls. Site access will be

controlled, and all on-site construction staff and visitors will be required to carry an identification pass.

CFEP will work with a security contractor to develop a plan to effectively monitor the overall site during construction, including an access gate, drive-around security, and specific checkpoints. Local emergency response organizations will be informed of security procedures to ensure that appropriate access is available.

3.10.6.2 Operations

The Project area will require security during the operations phase. Site visitors including vendor equipment personnel, maintenance contractors, material suppliers, and all other third parties will require permission for access from authorized Project staff prior to entrance. The Plant Operations Manager, or designee, will grant access to any critical areas of the site on an as-needed basis. Site access will be controlled and all visitors or contractors on the site will be required to carry an identification pass.

The O&M facility and the main substation will be equipped with outdoor lighting and motion sensor lighting. The substations will be surrounded by a 7-ft-tall chain-link fence with barbed wire along the top and locked gates. All wind turbines, pad transformers, pad-mounted switch panels, and other outdoor facilities will have secure, lockable doors.

3.10.7 Emergency and Law Enforcement Services

Access to the Project will occur directly from Moon Road for the construction period and operational life of the Project. Response times are expected to be minimal for fire and ambulance crews from Platte County departing from Chugwater.

CFEP has initiated discussions and participated in council meetings with various stakeholders in Platte County. It has been the intent of CFEP to understand the capabilities of the county to provide such services to the Project. CFEP would consider bringing private Emergency Medical Services (EMS) on site if further investigation determines it may be appropriate to meet the requirements of the internal EHS Plan.

3.10.7.1 Medical Emergencies

Calling 911 and alerting the EMS system generally will handle medical emergencies. Calls to 911 from the Project area would go to the Platte County Sherriff, where the appropriate fire/ambulance crews are paged for dispatch.

All construction and operations personnel working on the turbines will work in

pairs. All turbine maintenance staff will be trained in lowering injured colleagues to prepare for the possibility of an injury while working in the wind turbine that prevents a worker from climbing down the tower safely. A rescue basket, specially designed for this purpose, will be kept at the O&M facility and will be available for use by local EMS and fire personnel. Training in its use will also be provided to local EMS and firefighting personnel.

3.10.7.2 Fire Emergencies

Calling 911 and alerting the Platte County Sherriff, where the appropriate fire crews are paged for dispatch, will handle fire emergencies. The Chugwater Fire Department would respond to fire emergencies. The department consists of a fire hall within eight miles of the Project area. The hall is staffed by volunteers..

3.10.7.3 Law Enforcement

Access to the Project area by the Platte County Sherriff Department is currently provided via Moon Road. Enforcement capabilities would be provided by Platte County due to jurisdictional authority; therefore, impacts that may impair the health, safety, or welfare of the resource or the health, safety, or welfare of the people in the area of site influence are avoided.

3.10.8 Aviation Lighting

The FAA requires aircraft warning markings on all structures taller than 200 ft. The wind turbine towers would be more than 200 ft tall and would, therefore, trigger review by the FAA. Once the Project layout is finalized, a Project Lighting Plan would be developed using guidance from *FAA Technical Note: Developing Obstruction Lighting Standards for Wind Turbine Farms* (Patterson, 2005). Aviation warnings for a wind energy project include medium- intensity red strobe warning lights placed on the nacelles of the turbines on each end of a turbine string, as well as on every third or fourth turbine. Once the exact marking plan is developed, it will be submitted to the FAA for review.

3.10.9 Lightning

South East Wyoming is not a highly lightning prone area; however, lightning is considered in the design of the facility and its structures. Because the wind turbines will be the highest structures in the surrounding area, the probability of lightning strike may be higher. The mitigation measures in place are designed to minimize this risk significantly.

Both the WTGs and the substation are equipped with specially engineered lightning protection systems. Every wind turbine foundation will have grounding equipment to discharge electrical energy into the earth when the wind turbine

builds up an electrical charge as a result of being struck by lightning or an equipment malfunction. The equipment may consist of a copper cable grounding mat cast in place when the base is constructed or some other grounding method specified by the turbine manufacturer. The substation will also have grounding equipment, which may consist of a grounding grid laid below grade in trenches around the substation site or other grounding methods to further protect equipment and personnel.

Other project features equipped with grounding apparatus include transmission poles and meteorological towers. In general, the grounding crew follows behind the pole assembly and erection crew, installs the proper number of ground rods, and measures the ground resistance. If the proper ground resistance has not been achieved, additional ground rods are installed until acceptable ground resistance is obtained. On rocky sites with little to no soil mantle, adequate electrical grounding may be problematic and may require the installation of a grounding well reaching to the uppermost-saturated zone below the ground surface. Each turbine tower will have similar lightning grounding needs. Either ground rods, grounding grids, or, if necessary, grounding wells will need to be installed for each tower.

3.11 Site Decommissioning

Decommissioning is a step-by-step, methodical deconstruction process that involves removing and disposing of the infrastructure and appurtenant facilities associated with the Project. With some exceptions, site decommissioning would involve the reverse of site development. A typical decommissioning procedure is as follows:

- All turbines and their towers would be dismantled and either recycled at other wind energy projects, sold for scrap, or disposed of offsite as solid waste.

- Turbine towers constructed partially of concrete would be broken up.

- Foundations would be removed to a depth of 3 feet below grade. Broken concrete could be potentially used by highway departments for road base or bank stabilization.

- Electronic equipment would be recycled or disposed of (in some cases as hazardous waste because of the heavy metals present) in landfills or property licensed hazardous waste facilities.

- Transformers and electrical control devices would be reused in other applications or sold as scrap after fluid removal.

- Turbine foundations and belowground cable runs may be left in place.

- The access road, onsite roads, rock or gravel in the electrical substations, transformer pads, and building foundations would be removed and recycled if no longer needed.

- If the buried and overhead power lines could not be used, all structures, conductors, and cables would be removed unless otherwise allowed to remain in place.

Disturbed land areas covered in rock or gravel or building/tower footprints would be restored to original grade (which would include adjusting soil compaction that might have resulted from previous uses) and reseeded or replanted with native vegetation. Reclamation procedures would be based on site-specific requirements and techniques commonly employed at the time the area is to be reclaimed and would include regarding, adding topsoil, and re-vegetation of all disturbed areas. If requested by the landowner, all disturbed area would be reclaimed and restored so that prior ranching or farming uses could be resumed.

Dismantlement of electrical substations and storage building would be accompanied by inspection of the presence of industrial contamination from minor spills or leaks and decontamination, as necessary. Lastly, demolition or removal of equipment and facilities will meet applicable environmental and health regulations and every attempt will be made to salvage economically recoverable materials.

The potential fire risks during decommissioning and construction are similar in nature to those in the section for construction and operation but are lower for Project decommissioning. Fire prevention measures during decommissioning would be substantially similar to those described in Project construction.

3.12 Site Decommissioning Commitment

Novelution Wind, LLC is the parent company of CFEP, and will be adequately bonded during decommissioning. Therefore, if the Project were to terminate operations in the future, Novelution Wind, LLC is financially responsible to ensure the adequate decommissioning of the facilities. CFEP would also obtain the necessary authorization(s) from the appropriate regulatory agencies to decommission the facilities. Generally, wind farm projects that are decommissioned contain a high “scrap value” due to the materials and equipment

contained in the infrastructure (i.e. steel infrastructure, electric generators, and copper).

CFEP is contractually obligated to adhere to the decommissioning provisions set forth in each specific land lease covering the Project site. The lands included in the Project site are both privately owned and lands owned by the State of Wyoming. As may be expected, each lease has specific unique decommissioning plans negotiated with the landowner.

As an example of decommissioning requirements to which CFEP is obligated, set forth below are some decommissioning requirements from CFEP's Wind Energy Lease Agreement with the State of Wyoming:

Upon the expiration or termination of the lease, the Lessee must:

(a) Remove from all aboveground and belowground improvements to a depth of not less than two (2) feet below the surface grade, in a manner, which minimizes injury to the Property, by:

(i) removing concrete footings, foundations, and other fixtures to a depth of not less than two (2) feet below the surface grade; and

(ii) hauling away and disposing of, in a lawful manner, all removed concrete and other waste materials.

(b) Reclaim and restore the lands disturbed by Lessee to a condition and forage density reasonably similar to its condition and forage density on the Effective Date, consistent with the uses permitted by the lease, by reseeding any disturbed soil surface with suitable flora and restoring the terrain and contour to as close as reasonably practicable to their condition as of the Effective Date, and, as reasonably required, all leveling, terracing, mulching and other reasonably necessary steps to prevent soil erosion, to ensure the establishment of suitable grasses and forbs, and to control noxious weeds and pests.

CFEP's lease agreement with the State of Wyoming is a public document available through the Wyoming Office of State Lands and Investments. This document should be referenced if further detail concerning decommissioning requirements is desired.

While the leases between CFEP and the private landowners are subject to confidentiality provisions such that their terms cannot be publically disclosed, generally, the decommissioning requirements set forth in the State lease agreement are typical of lease requirements in the industry. As with any commercial agreement, CFEP is committed to honoring its commitments for this Project.

4. Public Involvement

Rule I Section 7(g) – The applicant shall identify what it deems to be the area of site influence and the local governments primarily affected by the proposed industrial facility as defined in Sections 2(b) and (c), respectively, of the regulations. The immediately adjoining area(s) and local governments shall also be identified with a statement of the reasons for their exclusion from the list of area(s) or local governments primarily affected by the proposed industrial facility.

As stated in the ISA rules and statutes, a local government primarily affected by the proposed industrial facility means any defined geographical area or unit of local government or special district in which the construction and operation of the industrial facility may significantly affect the environment, population, level of economic well- being, or level of social services or may threaten the health, safety, or welfare of present or expected inhabitants. Any such local government body or special district is within the area of site influence.

Based on the statute definition of the area of site influence presented above, the applicant recommends that local governments primarily affected by the proposed industrial facility would include the following:

Platte County and the incorporated cities of Chugwater and Wheatland

The applicant deems that local governments affected by the proposed industrial facility would include the following:

Platte and Goshen County, Wyoming, specifically the cities of:

Ft. Laramie, LaGrange, Lingle, Torrington, Yoder, Guernsey, Glendo and Hartville.

Large areas of Platte and Goshen counties would remain outside the Area of Site Influence due to excessive commuting distance and lack of appropriate accommodations. Additionally, other urban areas that could contain industries potentially affected by the proposed Project are relatively distant: Cheyenne (50 miles), Gillette (170 miles), Laramie (60 miles), and Rawlins (130 miles). It is recommended that counties (and communities contained within them) other than Platte and Goshen counties, be excluded from the area of site influence because of excessive commuting distance from the Project site.

CFEP aims to maximize the benefits of the Project to the local communities in the area of site influence while minimizing adverse impacts as much as possible. Therefore, CFEP conducted a series of meetings with state agencies and local officials and undertook additional outreach

activities that met and exceeded the ISA requirements. These activities are summarized below, and additional details are provided in **Appendix C**.

4.1 Meeting Activities

Formal meetings were scheduled by CFEP to present the Project and receive comments from state agencies and local government officials, and to provide the opportunity for involvement by local community members. Table 4-1 lists these formal public and agency involvement activities by organization and date.

Table 4-1 Local Government, State Agency, and Community Meetings

Organization	Date	General Discussion
WGFD	27-Jan-09	Initial contact, general discussion of project.
USFWS	2-Feb-09	Initial contact, general discussion of project.
WYSHPO	15-May-09	Initial contact, general project discussion.
WDEQ-ISD	17-Jun-09	Initial contact with Tom Schroeder to discuss ISA
High Plains Economic Development	24-Sep-09	Meeting to discuss economic development in Platte County and the project
Chugwater Economic Development Council	24-Sep-09	Meeting with the council to discuss the Project and impacts to the community
Platte County Prosecuting Attorney	30-Sep-09	Discussion of Project and zoning rules and regulations for Platte County
Platte County Planning and Zoning Office	30-Sep-09	Initial meeting with Dennis Becker to discuss the Project and necessary permitting processes
Platte County Assessor's Office	30-Sep-09	Discussion of Project and taxation related to the Project
WYDOT	14-Oct-09	Meeting with Mr. Jack Bell and staff to discuss the Project, roads, routes and use of magnesium chloride for dust abatement on roadways.
US Army Corps of Engineers	15-Oct-09	Meeting with Matthew A Bilodeau, Wyoming Program Manager, Wyoming Regulatory Office in Cheyenne WY to discuss the Project
WYSEO- Groundwater Division	15-Oct-09	Several e-mail conversations regarding surface and groundwater usage for the Project.
WDEQ-ISD	16-Sep-09	Jurisdictional Meeting- discussed an overview of the Project and ISA process, Project workforce and operations requirements, construction schedule and costs, local agency consultation, and public involvement.
Chugwater	3-Dec-09	Chugwater Open House presented the Project to the public and CFEP staff answered questions about the project. Discussed workforce and operations requirements, construction schedule, local agency consultation, agency involvement and public involvement.
Mayor of Chugwater	4-Dec-09	Follow up meeting with Carol Ash, Mayor of Chugwater, during her weekly public meeting to discuss setting up a clinic in Chugwater to service the public as well as the project, discuss water concerns and concrete procurement plans.
Wheatland	4-Dec-09	Wheatland Open House, presented the Project to the public and CFEP staff answered questions about the project. Discussed workforce and operations requirements, construction schedule, local agency consultation, agency involvement and public involvement.
Platte County Economic Development	10-Dec-09	E-mail correspondences and phone calls to discuss the project with Dan Brecht, Director
WDEQ-ISD	10-Dec-09	Pre-Application Meeting to discuss Project schedule, identify issues of importance, and application requirements.
Platte County Commissioners- Local Government	15-Dec-09	Formal meeting to present more details about the Project, Tom Schroder was present to answer questions on Impact Assistance Funds. Discussed workforce and operations requirements, construction schedule, local agency consultation, agency involvement and public involvement.

4.1.1 Meeting Format and Information Provided

The meeting format and the information provided at the meetings for the local government and the Open Houses presented in Table 4-1 were generally the same.

The format and information consisted of the following:

- Fifteen to thirty minutes were allotted during each two-hour open house to allow people to arrive casually and to give attendees time to meet CFEP staff and ask questions prior to and following a formal presentation.

- Two display boards were used with Novelution Wind, LLC's contact information visible.

- A Keynote (Mac version of PowerPoint) presentation detailing Novelution Wind, LLC, CFEP, and Project details was presented to each audience.

- Attendees were given Novelution Wind, LLC's contact information and invited to visit our headquarters in Chugwater, WY.

- A question-and-answer session followed each presentation in which CFEP discussed attendee concerns.

- CFEP staff handed out business cards to attendees to encourage further contact.

Tom Schroeder attended some of these meetings as a representative of the ISD to answer questions on ISA statutes and application procedures.

4.1.2 Meeting Notices and Attendees

The state agencies and local entities notified of the meetings and invited for input were those specified by statute in the ISA permit regulations. Local stakeholders and local government officials also received either one or several notices via e-mail announcements, phone invitations, and formal letter invitations. Meeting invitations, entities invited, and attendee sign-in sheets from the meetings are included in **Appendix C**.

4.1.3 Newspaper Advertisements and Notices

Newspaper advertisements announcing the CFEP open houses were placed in *The Platte County Record-Times, The Midweek Telegram, The Guernsey Gazette, The Lingle Guide,* and *The Lusk Herald* several days in advance of the meetings, as shown in Table 4-2. These are the main local newspapers serving residents of Platte and Goshen counties. The advertisement invited the public to attend the CFEP open houses to learn more about the Project and ask questions of CFEP representatives.

Table 4-2 Local newspapers and dates of notice for the Chugwater and Wheatland Open Houses

Local Newspaper	Notice Date
The Guernsey Gazette	November 24, 2009
The Lingle Guide	November 24, 2009
The Lusk Herald	November 24, 2009
The Platte County Record-Times	November 25, 2009
The Midweek Telegram	November 25, 2009

4.1.4 Additional Meetings

Additional meetings were held with local and state government agencies, elected officials, and parties relevant to permitting and planning the Project. The following is a list of meetings additional to the formal meetings described in Table 4-1 that took place either in person, over the phone, via e-mail, or through letter correspondences:

- **Bureau of Land Management**- Diane Schurman Realty Specialist discussion on December 10, 2008 about the Project and BLM lands
- **WGFD**- Initial contact on January 27, 2009; February 3, 2009 requested a list of state species of concern within the project area and discussed the project in general; February 17, 2009 discussion of response to state species of concern; May 27, 2009 in person meeting to discuss wind project and monitoring protocols; September 3, 2009 sent WGFD a copy of TESA report; October 5, 2009 discussion of response regarding TESA; October 14, 2009 in person meeting for discussion of the Project; November 12, 2009 sent WGFD a copy of the Summer Interim wildlife and avian studies performed by WEST, Inc
- **USFWS**- Initial contact on February 2, 2009, follow up meetings on February 10, 2009 to discuss the location of the wind energy project and request a list of potentially threatened or endangered species in the project area; February 23, 2009 for further discussion of threatened and endangered species; February 24, 2009 to discuss preliminary observations regarding the project area; March 6, 2009 a letter was received regarding Listed, Proposed, and Candidate Species and their designated and proposed critical habitats in the proposed project area; September 3, 2009 CFEP sent a copy of the

Threatened and Endangered Species Assessment (TESA) performed by Terracon to USFWS; October 15, 2009 in person discussion of TESA; November 20, 2009 invited USFWS to attend our open houses to discuss with landowners the Candidate Conservation Agreements with Assurance Policy, sent copies of Phase I Environmental Site assessment and the Summer Interim wildlife and avian studies performed by WEST, Inc to USFWS

- Phone meeting with Croell Redi-Mix about providing concrete as well as addressing water concerns on April 9, 2009; follow up meeting in Novelution Wind's Chugwater office with Rodgen Croell and Dave Costigan on Dec 3, 2009
- **University of Wyoming**- Discussion with Jonathan Naughton, PhD, Director of UW Wind Energy Research on May 7, 2009 to discuss wind development in Wyoming and wind related education training and support available in Wyoming
- **U.S. Department of Interior**- Assistant Secretary- Indian Affairs Amanda John on May 7, 2009, discussion of Indian lands and the Project
- **WYSHPO**- Initial contact on May 15, 2009 for a general discussion of the project; May 28, 2009 File search of records regarding cultural resource survey; August 17, 2009 Reply from SHPO allowing project to proceed
- **High Plains Economic Development District-** Meeting with Anja Bendel to discuss the Project on September 24, 2009; follow up meeting during the Chugwater Open House on December 3, 2009
- **Platte County Planning and Zoning Office-** Meeting with Dennis Becker to discuss the Project on September 30, 2009; follow up discussion during our Wheatland Open House on December 4, 2009; follow up discussion during the Platte County Commissioners Meeting December 15, 2009
- **USAF**- Clearance on Missile Silos on October 1, 2009 from Robert Sleesman
- **Wyoming Department of Employment-** E-mail correspondence on October 14 and Oct 15, 2009 to discuss the Project
- **Wyoming Department of Workforce Services-** E-mail correspondence on October 14, 2009 to discuss the Project with Mr. Westby, Industrial Partnership Manger; December 1, 2009 follow up discussion
- **Wyoming Chief Electrical Inspector-** E-mail to Kevin Booker on October 14 with reply on October 16, 2009
- **US Army Corps of Engineers**- discussion October 22, 2009 with Matthew A Bilodeau, Wyoming Program Manager, Wyoming Regulatory Office in Cheyenne, WY; Follow up meeting in person

on October 27, 2009 with response of no waters of US involved in the Project

- **State of Wyoming Department of Revenue-** Meeting with Terri Lucero on November 4, 2009 to discuss the Project's tax assessment
- Formal letter invitation to Open Houses and request for comments sent to the following on November 23, 2009:
    - Platte County Commissioners
    - Goshen County Commissioners
    - Platte County Sherriff
    - Platte County Planning and Zoning Office
    - Mayor and Town Council Members of:
        - Yoder
        - La Grange
        - Torrington
        - Lingle
        - Wheatland
        - Chugwater
        - Glendo
        - Guernsey
        - Hartville
        - Ft. Laramie
    - Many other parties as shown in **Appendix C**
- **Wheatland Workforce Services-** Discussion and project overview on December 1, 2009
- Phone call with Gary Olson, owner of TDS Landfill, to discuss disposal of solid waste as well as providing Port-A-Potties on site on December 1, 2009 and December 3, 2009
- **Platte County Emergency Services-** Spoke with Jane Carlson about the Project's potential needs on December 1, 2009 over the phone; follow up meeting on December 4, 2009 in person
- **Chugwater Fire Department-** Meeting with Tim Ash, Fire Chief, on December 3, 2009 to discuss the Project's potential needs
- **Platte County Memorial Hospital-** Discussion about the Project's potential needs on December 3, 2009
- **Platte County Sheriff-** Meeting with Steve Keigley to discuss the Project's potential needs on December 4, 2009
- **Platte County Road and Bridge-** Meeting with Jim Lockman, Supervisor, to discuss local road use permit and road use plans on December 28, 2009

4.2 Questions During Open Houses

The types and nature of the questions posed were similar across all the meetings and included such topics as:

- Turbine siting and density
- Policy for local hiring
- Transmission availability
- Costs associated with construction
- Phases of the Project
- Project start date
- Number of turbines a single substation can service
- Turbine supplier
- Emergency personnel and safety policy
- Turbine maintenance
- Location of office and operations and maintenance building
- Location of turbine cabling and transmission lines
- Bird, bat, and wildlife studies and if they are being conducted

CFEP representatives attempted to provide answers to the best of their knowledge for all of the above questions.

4.3 CFEP Response to Community Concerns

CFEP anticipated that the communities of Chugwater and Wheatland would have unique concerns due to the proximity of the Project to their communities. Therefore, CFEP scheduled open house meetings in these communities to present Project details and answer questions. CFEP planners undertook these additional activities as a way to gauge public sentiment and to ensure public support of the Project by proactively addressing identified concerns. The meetings were productive and enabled CFEP to understand the perspectives of the local communities. Overall, the communities were very supportive of the Project.

5.0 Socioeconomic Baseline Data and Analysis of Impacts

5.1 Introduction

Title 35 Public Health and Safety, Chapter 12 Industrial Development and Siting of the Statutes of the State of Wyoming, provides guidance relative to the socioeconomic topics of concern that shall be addressed during the permit application process. There are a number of aspects of the socioeconomic environment that could experience impacts associated with construction and operation of the proposed facility, and they are addressed in this report. They include economic base, housing, transportation, sewer and water facilities, solid waste facilities, police and fire facilities, educational facilities, health and hospital facilities, and water supply.

The ISC shall grant a permit either as proposed, or as modified by the council, if it finds and determines that the facility will not pose a threat of serious injury to the environment or to the social and economic condition or inhabitants or expected inhabitants in the affected areas and will not substantially impair the health, safety or welfare of the inhabitants. For the purpose of the permit application, the definitions of “health,” “Safety,” and “welfare” provided in the statutes are as follows. Health shall mean the state of being sound in body or mind and includes psychological as well as physical well-being. Safety shall mean freedom from fear of injury or threat of injury. Such injury or threat of injury may be premised on crime rates, traffic accident rates, dangers of industrial accidents or mishaps, or other similar considerations. Welfare shall mean considerations of public convenience, public well-being, or general prosperity. The term also properly covers those subjects encompassed under health and safety.

Guidance is provided in the statutes regarding information that should be included in the permit application and includes the following: area of site influence and local governments primarily affected by the proposed industrial facility, construction and operations workforce estimates, and inventory and evaluation of the social and economic conditions in the area of site influence.

5.1.1. Construction and Operations Workforce Estimates

It is required that estimates be provided of the number of employees needed to complete the construction and operation of the facility by the applicant, its

contractors, and subcontractors. These estimates must include job classifications by calendar quarter, seasonal fluctuations, and the peak employment during both construction and operation, annual payroll, and expected benefits, if any, to be provided including housing allowance, transportation allowances, and per diem allowances.

Please see Table 3-2 for information on job classifications by month, fluctuations, and peak employment during construction. Peak employment during operation is expected to reach 64 full time employees. Information on payroll estimates is discussed in Section 5.4.

5.1.2 Inventory and Evaluation of the Social and Economic Conditions

Social and economic conditions in the geographical area likely to experience impacts associated with the construction and operation of the industrial facility are inventoried and evaluated as they currently exist and projected as they would exist in the future without the proposed facility and as they would exist with the facility.

Potential impacts associated with the proposed facility are driven by a number of factors including direct construction and operations workers currently residing in the area; direct workers newly entering the region; additional service workers required to support these direct workers; and the local purchase of equipment, supplies, materials, and services necessary for construction and operations of the facility. Where appropriate, level of service (LOS) ratios are calculated for resources, and comparisons are made with statewide, national, local, and standard ratios to provide a perspective for succeeding impact assessment. LOS ratios express the quantity of a service (e.g., expressed as the number of firefighters or law enforcement officers in a service area) in relation to the population contained in the respective service area (e.g., per 10,000 residents). These ratios provide a means of comparing service levels across service areas and over time or against target or standard levels. LOS ratios are used to estimate the number of additional service personnel required to meet the demands of new residents while maintaining existing LOS. If it appears that the resources are unlikely to be able to accommodate the new demands of the Project, then mitigation measures are proposed.

Three significant benefits for Wyoming that are attributable to the Project include the following: tax revenues, direct employment, and secondary employment. Construction of the Project will provide employment opportunities for local and nonlocal workers. It is likely that some construction workers (and possibly family members) could relocate to the study area for the entire duration or a portion of the construction phase. Personal consumption expenditures by direct workers would generate sales tax revenues for the counties and municipalities that

contain the point of sale. The purchase of equipment, supplies, materials, and services necessary for construction and operation of the Project could create indirect jobs, and purchases by direct workers could induce additional employment.

To the degree that workers (with or without their family members) temporarily relocate to the area as a direct result of construction of the Project, additional demands would be placed on resources in the area of site influence. For example, accommodations (permanent or temporary) would be required to house relocating workers, and new residents (even if temporary) could increase the demand for community resources and services such as public education and police and fire protection. Should the additional demand exceed the capacity of the existing service providers, it could be necessary to implement mitigation measures to alleviate the capacity issued.

5.2 Area of Site Influence, Local Governments Primarily Affected, and Study Area

Rule I Section 7(g) – The applicant shall identify what it deems to be the area of site influence and the local governments primarily affected by the proposed industrial facility as defined in Section 2(b) and (c), respectively, of these regulations. The immediately adjoining area(s) and local governments shall also be identified with a statement of the reasons for their exclusion from the area(s) or local governments primarily affected by the proposed industrial facility.

5.2.1 Area of Site Influence

An area of site influence contains locations that may be affected environmentally, socially, or economically, in any significant degree, by the location of the industrial facility at the proposed site. To assist in identifying the area of influence that the applicant recommends to the ISC, consideration is given to estimates of potential daily commute distances and times to the project site from surrounding communities and potential accommodations that exist at these communities. The proposed site is located approximately 7 miles northeast from Chugwater and 14 miles southeast of Wheatland.

Table 5-1illustrates the location of the work site in relation to communities in Platte and Goshen counties.

Table 5-1 Allocation of Nonlocal Construction Workers to Places of Temporary Residence

County	Community	Distance (in miles) from Project Boundary	Distance (in minutes driving time) from Project Site	Population (July 2008)	Percent of Nonlocal Workers Allocated to Community
Platte	Wheatland	14	47	3,298	50%
Platte	Chugwater	7	16	221	27%
Goshen	LaGrange	28	66	317	4%
Goshen	Yoder	20	70	159	3%
Goshen	Torrington	28	84	5,522	8%
Platte	Guernsey	24	78	1,072	3%
Platte	Glendo	42	73	219	3%
Platte	Hartville	28	88	70	>1%
Goshen	Lingle	24	100	487	>1%
Goshen	Ft Laramie	23	97	232	>1%

It is within this recommended area of site influence and the communities contained within it that the majority of construction and operations workers are expected to reside and within which CFEP will concentrate efforts to house nonlocal workers. CFEP desires to maximize the benefits of the Project to the local communities, while minimizing adverse impacts as much as possible. While the intent of CFEP is to ensure that adequate housing for the nonlocal workforce is available mainly within the communities of Chugwater and Wheatland, it is recognized that some members of the workforce may choose to temporarily reside outside of these communities.

5.2.2 Local Governments Affected by the Project

As stated in the statutes, a local government primarily affected by the proposed industrial facility means any defined geographical area or unit of local government or special district in which the construction and operation of the industrial facility may significantly affect the environment, population, level of economic well-being, or level of social services or may threaten the health, safety, or welfare of present or expected inhabitants. Any such local government body or special district is within the area of site influence.

5.2.2.1 Local Governments Primarily Affected by the Proposed Industrial Facility

Based on the recommended delineation of the area of site influence presented above, the applicant deems that local governments primarily affected by the proposed industrial facility would include the following:

Platte County and the incorporated cities of Chugwater and Wheatland

The applicant deems that local governments affected, but not primarily affected, by the proposed industrial facility would include the following:

Platte and Goshen County, Wyoming, specifically the cities of:

Ft. Laramie, LaGrange, Lingle, Torrington, Yoder, Guernsey, Glendo and Hartville.

5.2.2.2 Local Governments Primarily Unaffected by the Proposed Industrial Facility

It is recommended that counties (and communities within them) other than Platte and Goshen County be excluded from the area of site influence because of excessive commuting distance from the Project site.

The applicant deems that a number of communities located within the recommended area of site influence would also not experience Project-related impacts. Their proposed exclusion is based on excessive commute distance from the Project site and lack of appropriate accommodations.

5.2.3 Study Area

The socioeconomic impact analysis methodology involves a description of existing (i.e., baseline) conditions for a geographical area broader than the area of site influence. The county comprising the study area was identified early in the analysis and in consultation with the Industrial Sitting Division (ISD) as those containing potential relocation sites for workers commuting to the construction site.

The study area for the socioeconomic analysis consists of Platte and Goshen counties located in the southeastern portion of Wyoming.

5.3 Baseline Socioeconomic Conditions

Rule I Section (7) (i) – An evaluation of the social and economic conditions in the area of site influence. The social and economic conditions shall be inventoried

and evaluated as they currently exist, projected as they would exist in the future without the proposed industrial facility and as they will exist with the facility.

This section presents a summary of baseline socioeconomic conditions within the study area consisting of Platte and Goshen County. The purpose of this section is to provide details of existing conditions regarding pertinent socioeconomic resources within the study area and to provide a frame of reference against which to assess Project-related impacts. The resources addressed include populations, economic conditions, housing (permanent and temporary), education, public safety, health care, municipal services, and transportation facilities.

5.3.1 Population

*Rule I Section (7) (i)(iii) – A study of the area population including a description of methodology used. The study may include, but is not limited to, an evaluation of demographic characteristics for the current population and projections of the area population without the proposed industrial facility***.**

Past, present, and future characteristics of the population in the study area are described in this subsection. These characteristics include historical trends for the study area, county and incorporated places; age composition of the county population; race and ethnicity; and migration patterns.

Population characteristics that are important in determining the location and availability of the local labor force include the location of population centers and the age distribution of the population (i.e., the identification of areas where persons of working age reside).

5.3.1.1 Historical Population Trends

As shown in table 5-2, between 2000 and 2008 the population of Platte County decreased by approximately 510 people, or 5.8 percent. Goshen County decreased in population by 4 % from 2000 to 2008. The Town of Wheatland's estimated population decreased by 257 people from 2000 to 2008, a decrease of 7.25 percent. The Town of Torrington contracted by 263 people, which is a 5 % decrease. This is in contrast to the population of the state of Wyoming, which increased by an estimated 7.9 % between 2000 and 2008.

Table 5-2 Population Trends in the Study Area (2000 to 2008)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Wyoming	497,782	493,032	497,204	499,369	503,258	506,541	512,757	522,830	532,668
Chugwater	244	241	238	233	232	227	226	225	221
Wheatland	3,555	3,527	3,515	3,464	3,471	3,413	3,377	3,345	3,298
Glendo	228	228	227	224	227	225	221	219	215
Guernsey	1,139	1,139	1,133	1,111	1,109	1,100	1,101	1,087	1,072
Hartville	75	75	75	74	75	74	73	72	70
Platte County	8,807	8,738	8,702	8,578	8,570	8,472	8,437	8,387	8,294
LaGrange	332	330	327	327	329	328	327	326	326
Yoder	169	167	164	163	161	161	160	159	159
Torrington	5,777	5,696	5,609	5,544	5,510	5,452	5,436	5,475	5,514
Ft. Laramie	243	240	236	234	232	229	227	227	228
Lingle	510	505	496	491	487	485	483	483	484
Goshen County	12,538	12,389	12,219	12,135	12,157	12,073	12,010	12,020	12,072

Population Density and Location. The majority of the population of Platte County resides in incorporated communities. Wheatland contains approximately 40% of the county's population. Guernsey contains approximately 13% of the population of Platte County. The four main incorporated communities in Platte County make up about 59% of the county's population leaving the remaining population living in rural areas of Platte County as illustrated in **Table 5-2**. The population density in Platte County is 4 persons per square mile. Torrington is the largest community in Goshen County containing approximately 45% of the county's population. The population density in Goshen County is 3 persons per square mile.

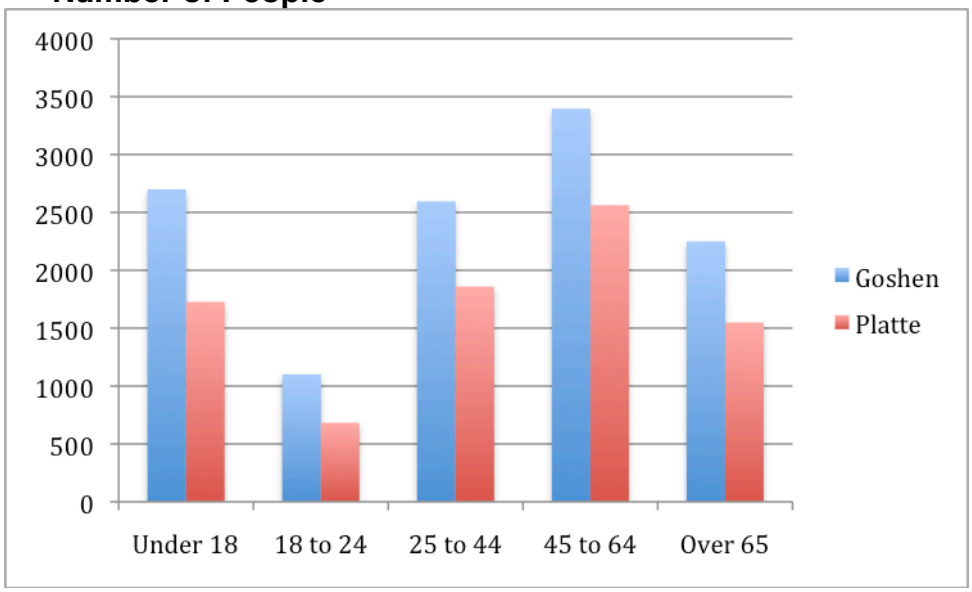
Table 5-3 Population by County and Community (2000 to 2008)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Platte County	8,807	8,738	8,702	8,578	8,570	8,472	8,437	8,387	8,294
Goshen County	12,544	12,389	12,219	12,135	12,157	12,073	12,010	12,020	12,072
Study Area	21,351	21,127	20,921	20,713	20,727	20,545	20,447	20,407	20,366
Percent of Study Area									
Platte County	41%	41%	41%	41%	41%	41%	41%	41%	40%
Wheatland	16%	16%	16%	16%	16%	16%	16%	16%	16%
Chugwater	1%	1%	1%	1%	1%	1%	1%	1%	1%
Glendo	1%	1%	1%	1%	1%	1%	1%	1%	1%
Guernsey	5%	5%	5%	5%	5%	5%	5%	5%	5%
Hartville	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Goshen County	59%	59%	58%	59%	59%	59%	59%	59%	60%
LaGrange	1.50%	1%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Yoder	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
Torrington	27%	26%	26%	26%	26%	26%	26%	26%	27%
Lingle	3%	3%	3%	3%	3%	3%	3%	3%	3%
Ft. Laramie	1%	1%	1%	1%	1%	1%	1%	1%	1%

5.3.1.2 Age of the Population

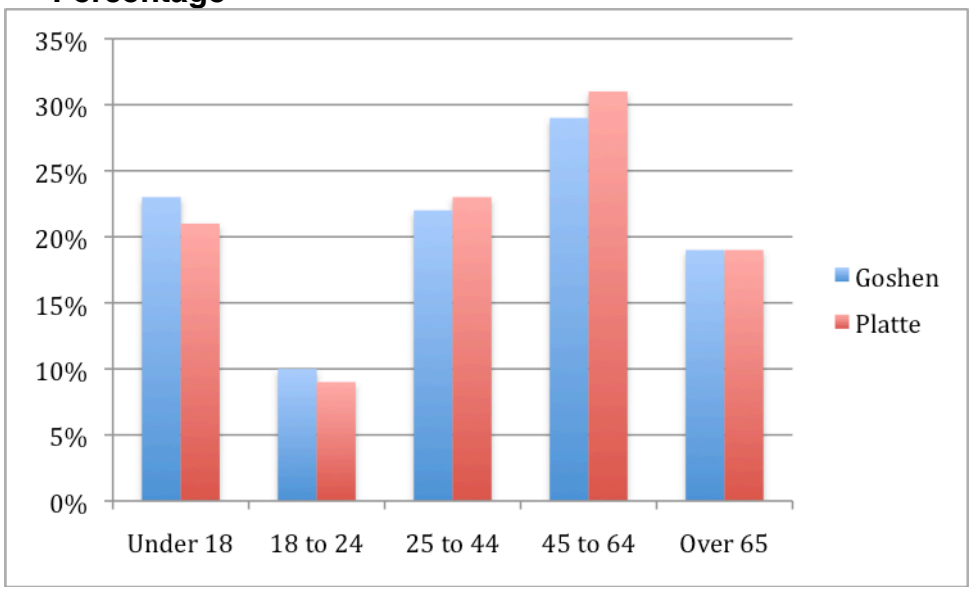
As shown in Figures 5-1 and 5-2, Goshen County has a larger population than Platte County. The largest population group for both counties is the age 45 to 64 group. This age group makes up a slightly larger proportion of the total county population in Platte than in Goshen County. Both counties have close to the same proportion of population overage 65, which is about 18%.

Figure 5-1 Population Age Groups for Platte and Goshen Counties By Number of People



Source: Wyoming Department of Administration and Information, Economic Analysis Division (2008)

Figure 5-2 Population Age Groups for Platte and Goshen County by Percentage



Source: Wyoming Department of Administration and Information, Economic Analysis Division (2008)

5.3.1.3 Population Race and Ethnicity

Table 5-4 illustrates the race and ethnicity compositions of the populations of Wyoming, Platte County, and Goshen County by percentage.

Table 5-5 shows the ethnic composition of individual communities in the study area.

Table 5-4 Estimated Population Composition Percentage by Race and Ethnicity (2008)

	White Persons not Hispanic	Black Persons	American Indian and Alaska native Persons	Asian Persons	Native Hawaiian and Other Pacific Islander	Persons of Hispanic or Latino Origin	Persons Reporting Two or More Races
State of Wyoming	86.80%	1.30%	2.50%	0.70%	0.10%	7.70%	1.50%
Platte County	91.60%	0.30%	0.70%	0.30%	0.00%	6.60%	1.00%
Goshen County	88.80%	0.20%	1.10%	0.20%	0.10%	9.10%	0.80%

Source: U.S. Census Bureau (2008)

Table 5-5 Number of Persons within a Racial or Ethnic Group by Geographic Location

	White	Black or African American	American Indian & Alaskan Native	Asian	Native Hawaiian and Other Pacific Islander	Hispanic or Latino (of any race)
Chugwater	234	0	1	0	0	12
Wheatland	3,406	11	24	12	0	232
Glendo	218	0	1	0	0	12
Guernsey	1,050	2	12	2	0	93
Hartville	68	0	0	0	0	17
LaGrange	312	1	6	4	1	25
Hawk Springs	57	0	0	0	0	12
Yoder	158	0	1	0	4	6
Torrington	5,400	18	52	17	6	547
Lingle	493	0	0	0	1	21
Ft. Laramie	230	0	3	0	0	11

Source: US Census Bureau (2000)

5.3.1.4 Population Poverty Status

The Wyoming population for whom poverty status was determined in the 2000 Census represents about 93 percent of the total population for each of the counties and 97 percent for the state. Of this subset of the population, the proportions living below the poverty level (as defined in 2006) were about 12% of Platte County, 14% of Goshen County and 11.4% of the state of Wyoming**.**

5.3.1.5 Future Population

As shown in Table 5-6, projections prepared by the State of Wyoming Economic Analysis Division forecast the population of the state of Wyoming to increase by almost 56,000 persons (11 percent) at an average annual rate of 0.8 percent between 2007 and 2020. Over the same period of time the population of Platte County is projected to decrease by 6.6 percent, and the population of Goshen County is projected to decrease by 1.5 percent. Similar patterns hold for the communities within the two counties.

Table 5-6 Population Forecasts for State, County and Cities (2010 - 2020)

	2000 Census	2007 Estimate	2010 Forecast	2015 Forecast	2020 Forecast	2030 Forecast
Wyoming	493,782	522,830	539,740	560,000	578,730	621,160
Platte County	8,807	8,396	8,290	8,060	7,840	7,960
Wheatland	3,555	3,349	3,307	3,215	3,127	3,175
Chugwater	244	225	222	216	210	213
Glendo	229	219	216	210	204	208
Guernsey	1,147	1,088	1,074	1,044	1,016	1,032
Hartville	76	72	71	69	67	68
Goshen County	12,538	11,995	12,050	11,960	11,820	11,800
Ft. Laramie	243	228	229	227	225	224
La Grange	332	326	327	325	321	321
Lingle	510	484	486	483	477	476
Torrington	5,776	5,437	5,462	5,421	5,358	5,349
Yoder	169	159	160	159	157	156

Source: Wyoming Department of Administration and Information, Economic Analysis Division, July 2008

5.3.2 Economic Conditions

Rule I Section 7(i)(ii) – A study of the area economy including a description of methodology used. The study may include, but is not limited to, the following factors:

A. Employment Projection by major sector;
B. Economic bases and economic trends of the local economy;
C. Estimates of basic versus non-basic employment;
D. Unemployment rates

This section addresses past, present and future economic conditions (labor force, employment, and unemployment); income and earnings by industrial sector; commuting patterns and work centers; existing labor characteristics and availability; and government revenues (property, sales, use and lodging taxes).

5.3.2.1 Past and Present Economic Conditions

Rule I Section 7 (i) (ii) (B and D)
(B) Economic bases and economic trends of the local economy;
(D) Unemployment rates

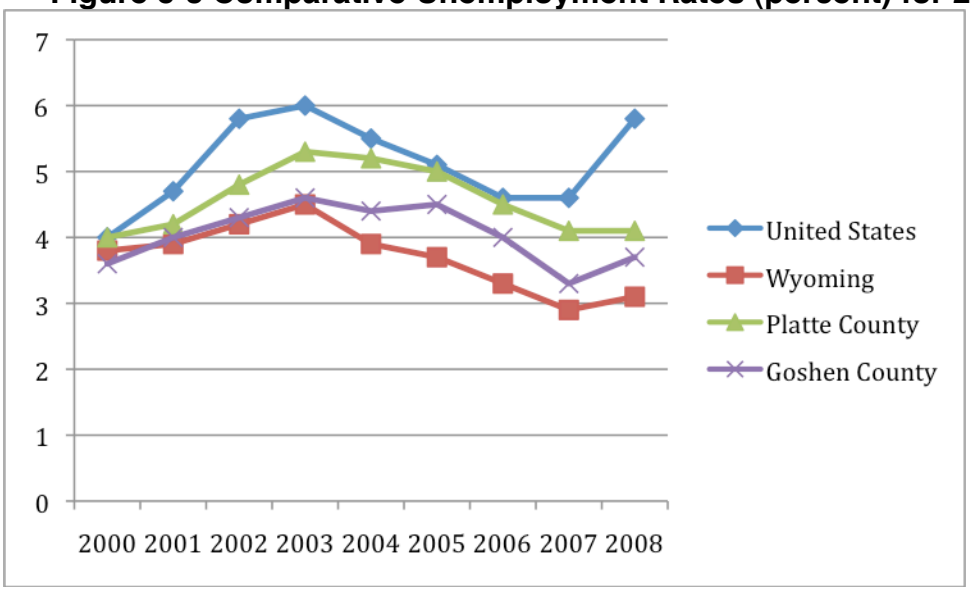
Table 5-7and Figure 5-3 compares national, state and county unemployment rates over the period 2000 through 2008. During that period the figure shows Platte County, Goshen County and State of Wyoming unemployment rates rising until 2003 and generally falling thereafter through 2007. The state unemployment

rate peaked at 4.5 percent in 2003 and reached a low of 2.9 percent in 2007 before ticking up in 2008. While the state unemployment trend generally followed the United States unemployment rate, Platte County, Goshen County and the state of Wyoming all had a lower unemployment rate throughout the time period than the United States. Goshen County's unemployment rate was closer to the state unemployment rate and also lower than Platte County's unemployment rate throughout the period.

Table 5-7 Unemployment Rates (percent) for United States, Wyoming, Platte County, and Goshen County 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
United States	4	4.7	5.8	6	5.5	5.1	4.6	4.6	5.8
Wyoming	3.8	3.9	4.2	4.5	3.9	3.7	3.3	2.9	3.1
Platte County	4	4.2	4.8	5.3	5.2	5	4.5	4.1	4.1
Goshen County	3.6	4	4.3	4.6	4.4	4.5	4	3.3	3.7

Figure 5-3 Comparative Unemployment Rates (percent) for 2000-2008



5.3.2.3 Employment by Industrial Sector

As shown in Table 5-8 and Figures 5-4 and 5-5, in 2007 the following industrial sectors contributed major shares of non-farm employment in Platte County: Government (16 percent), Retail Trade (10 percent), Farm Employment (10 percent), Accommodation and Food Service (8 percent) and Construction at 6 percent. Goshen County had a generally similar distribution but with Government at 17 percent, Accommodation and Food Service at 5 percent being the major

differences between the two counties' employment profiles as shown in Table 5-8 and Figures 5-4 and 5-5.

The total employment in Platte County is made up of Wage and Salary (66.3%), Non-Farm Proprietors of (26.08%) and Farm Proprietors employment of (7.62%) as shown in Figure 5-6. The total employment in Goshen County is made up of wage and salary at 65.95%, Non-Farm Proprietors at 25.99% and Farm Employment at 8.06% as shown in Figure 5-7.

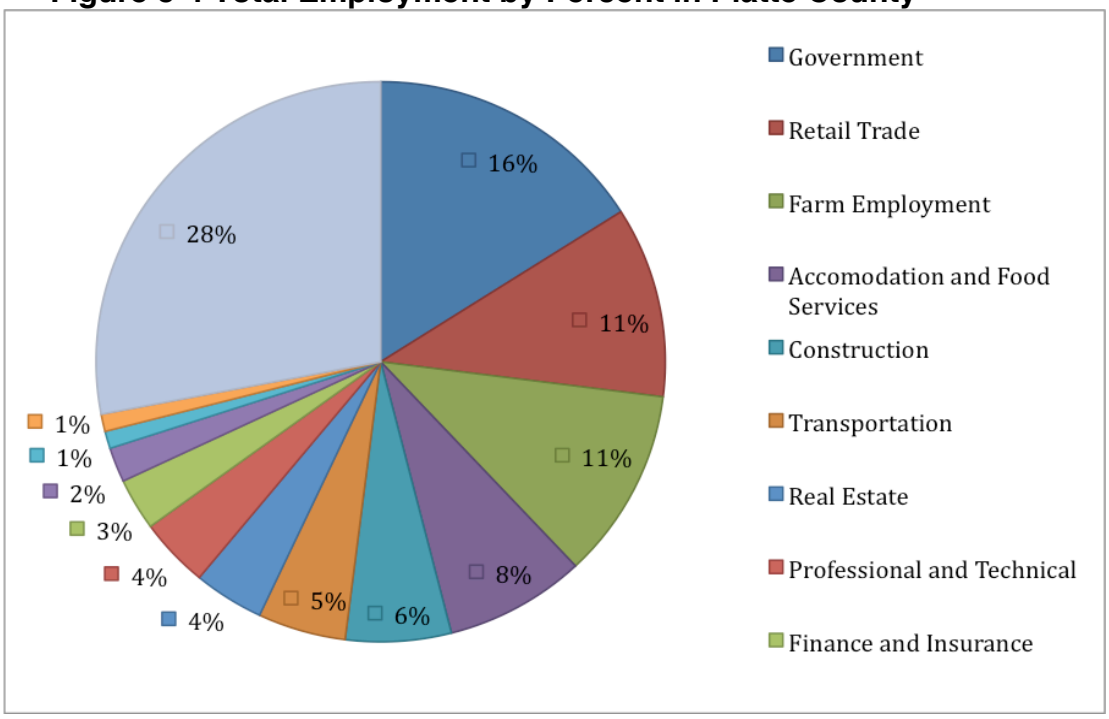
Table 5-8 Total Full-Time and Part-Time Employment by NAICS Industry for Wyoming, Platte County, and Goshen County (2007)

	Wyoming		Goshen County		Platte County		Platte and Goshen Counties	
	Numbe of Jobs	% of Total	Numbe of Jobs	% of Total	Numbe of Jobs	% of Total	Numbe of Jobs	% of Total
Total employment	389,776	100.00%	7,342	100.00%	5,760	100.00%	13,102	100.00%
Wage and salary employment	301,277	77.30%	4,842	65.90%	3,819	66.30%	8,661	66.10%
Proprietors employment	88,499	22.70%	2,500	34.10%	1,941	33.70%	4,441	33.90%
Farm proprietors employment	8,440	2.20%	592	8.10%	439	7.60%	1,031	7.90%
Nonfarm proprietors employment	80,059	20.50%	1,908	26.00%	1,502	26.10%	3,410	26.00%
Farm employment	11,472	2.90%	781	10.60%	593	10.30%	1,374	10.50%
Nonfarm employment	378,304	97.10%	6,561	89.40%	5,167	89.70%	11,728	89.50%
Private employment	308,429	79.10%	5,342	72.80%	4,233	73.50%	9,575	73.10%
Forestry, fishing, related activities, and other	2,865	0.70%	(D)		(D)			
Mining	31,099	8.00%	(D)		(D)			
Utilities	2,566	0.70%	35	0.50%	(D)		35	0.30%
Construction	36,660	9.40%	491	6.70%	373	6.50%	864	6.60%
Manufacturing	11,934	3.10%	356	4.80%	135	2.30%	491	3.70%
Wholesale trade	9,819	2.50%	261	3.60%	(D)		261	2.00%
Retail trade	41,691	10.70%	761	10.40%	595	10.30%	1,356	10.30%
Transportation and warehousing	14,819	3.80%	189	2.60%	287	5.00%	476	3.60%
Information	4,756	1.20%	59	0.80%	34	0.60%	93	0.70%
Finance and insurance	11,573	3.00%	262	3.60%	183	3.20%	445	3.40%
Real estate and rental and leasing	17,938	4.60%	318	4.30%	284	4.90%	602	4.60%
Professional, scientific, and technical services	17,019	4.40%	251	3.40%	201	3.50%	452	3.40%
Management of companies and enterprises	1,056	0.30%	0	0.00%	(D)		0	0.00%
Administrative and waste services	13,158	3.40%	242	3.30%	(D)		242	1.80%
Educational services	3,306	0.80%	(D)		(D)			
Health care and social assistance	27,891	7.20%	(D)		(D)			
Arts, entertainment, and recreation	6,788	1.70%	109	1.50%	80	1.40%	189	1.40%
Accommodation and food services	33,160	8.50%	368	5.00%	476	8.30%	844	6.40%
Other services, except public administration	20,331	5.20%	424	5.80%	286	5.00%	710	5.40%
Government and government enterprises	69,875	17.90%	1,219	16.60%	934	16.20%	2,153	16.40%
Federal, civilian	7,298	1.90%	97	1.30%	113	2.00%	210	1.60%
Military	6,130	1.60%	74	1.00%	52	0.90%	126	1.00%
State and local	56,447	14.50%	1,048	14.30%	769	13.40%	1,817	13.90%
State government	14,671	3.80%	123	1.70%	178	3.10%	301	2.30%
Local government	41,776	10.70%	925	12.60%	591	10.30%	1,516	11.60%

(D) = Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

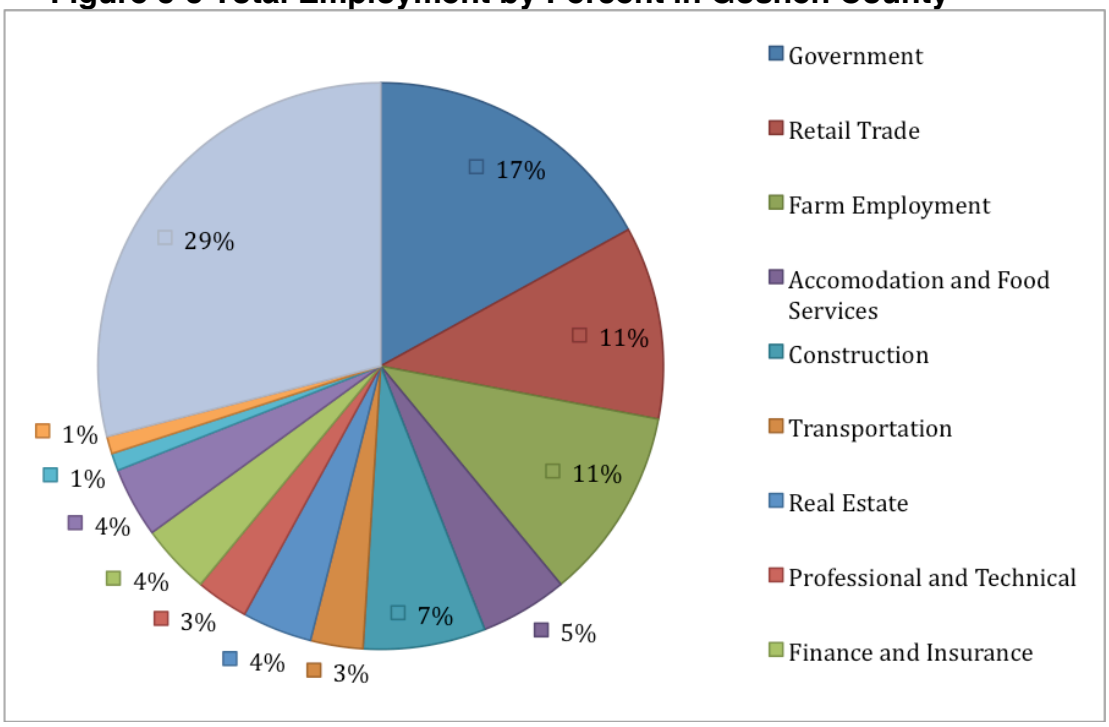
Source: USDC BEA REIS Table CA25N

Figure 5-4 Total Employment by Percent in Platte County



Source: U.S. Census Bureau, County Profile

Figure 5-5 Total Employment by Percent in Goshen County



Source: U.S. Census Bureau, County Profile

Figure 5-6 Employment Type in Platte County by Percent

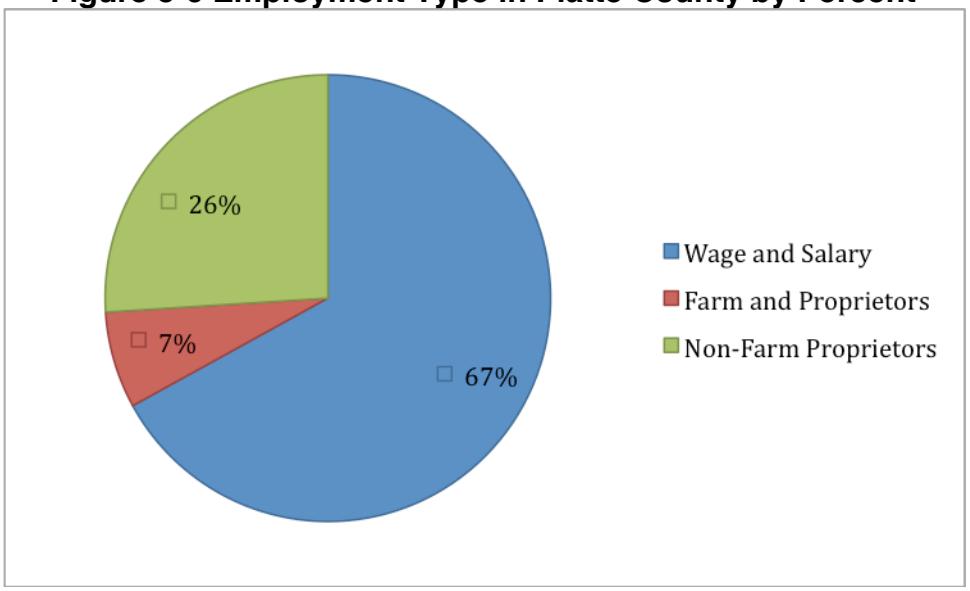
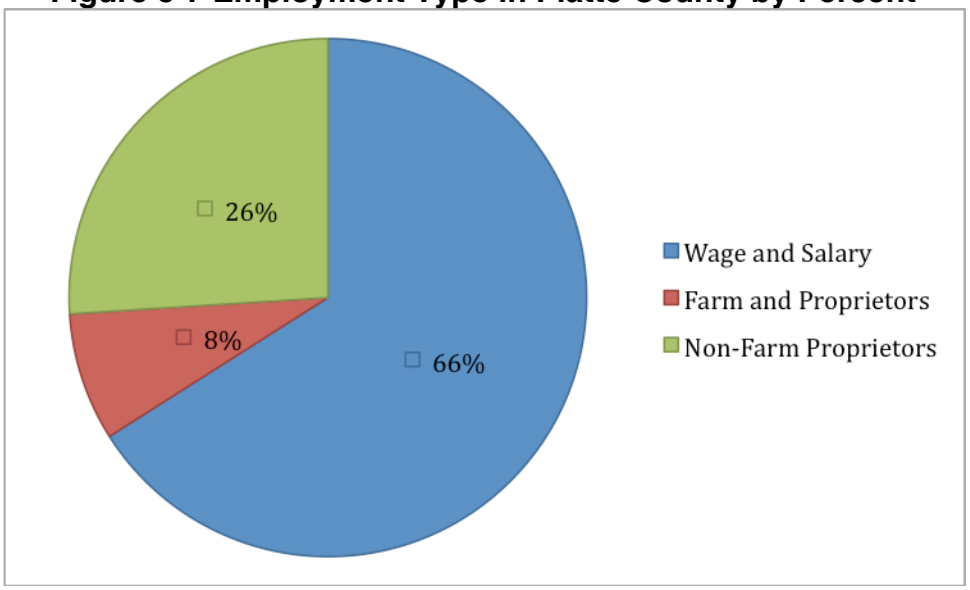


Figure 5-7 Employment Type in Platte County by Percent



As can be seen from the listing of major employers in Platte and Goshen County shown in Table 5-9 and 5-10, many of the largest employers are public or semi-private enterprises.

Table 5-9 Major Employers of Platte County 2009

Employer	Employees	Product/Service
Platte County School Dist. #1	350	Education
Laramie River Power Station	300	Coal Power Plant
Burlington Northern	185	Railroad
Platte County Memorial Hospital & Nursing Home	180	Health Care
Camp Guernsey	85	Army Reserve Camp
Platte County	70	Government Services
JO Enterprises	65	Construction
Platte County School Dist. #2	64	Education
Wyoming Premium Farms	60	Farm/Ranch
Britz Company	60	Manufacturing
Town of Wheatland	45	Government Services
Safeway	43	Food Service
Glendo Marina	32	Recreation
Lock Trucking	29	Transportation

Source: Platte County Chamber of Commerce

Table 5-10 Major Employers of Goshen County 2009

Employer	Employees	Product/Service
Goshen County School District	645	Education
Banner Health	285	Health Care
Western Sugar Cooperative	140	Sugar Mfgr.
St. Joseph's Children's Home	130	Care
City of Torrington	137	City Government
Eastern Wyoming College	110	Education
Goshen County	80	County Government
Diversified Services	75	Job Service
Madden Brothers	60	Cattle Sales
Wyoming Ethanol	30	Ethanol plants

Source: Goshen County Economic Development

5.3.2.4 Earnings and Income

As shown in Figures 5-8 and 5-9, annual per capita personal income increased in Platte County between 1970 and 2007 from $3,702 in 1970 to $34,480 in 2007. Annual per capita personal income in Goshen County followed a similar trend but from a slightly lower base. Over the same period per capita personal income in Wyoming rose from $3,904 in 1970 to $47,047 in 2007. Average per capita personal income in the United States rose from $4,085 in 1970 to $38,615 in 2007.

Figure 5-8 Per Capita Income 2000-2007

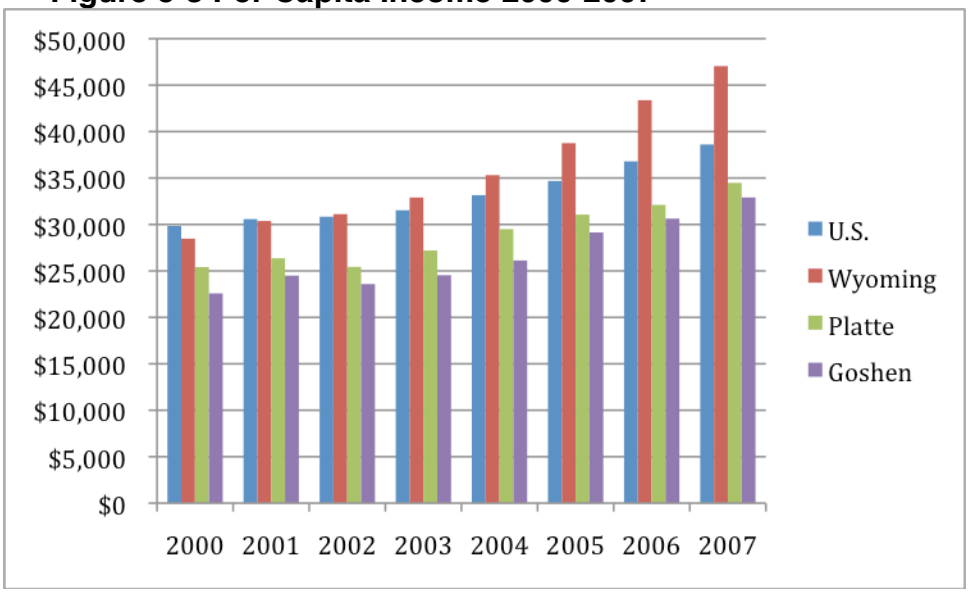
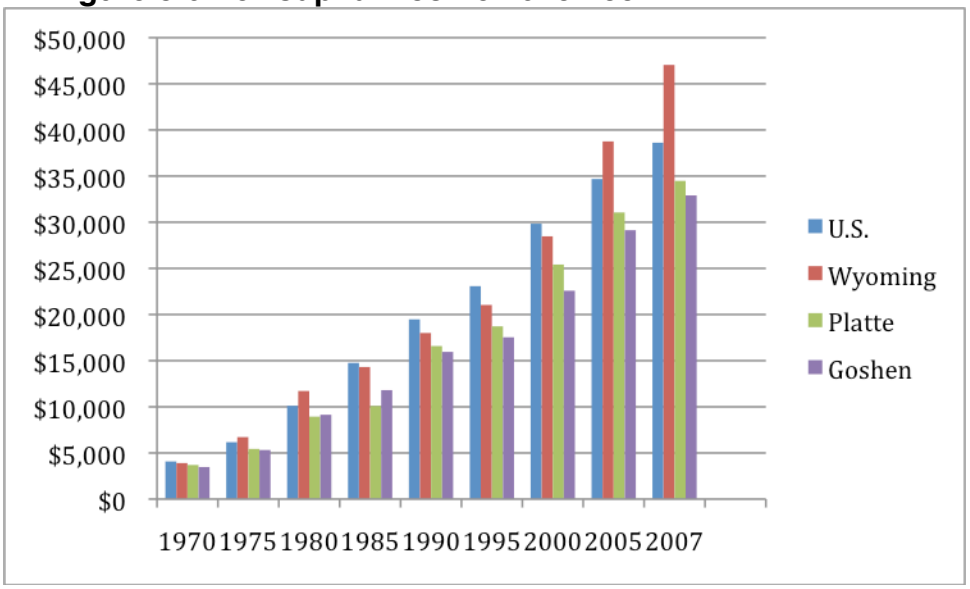


Figure 5-9 Per Capita Income 1970-2007



5.3.2.5 Work Centers and Bedroom Communities

Depending upon the balance between the number of employment opportunities in a county and the number of workers residing in the county, the county can be classified between the two extremes of work center and bedroom community. In the case of a work center, there are typically more job opportunities in the area than resident workers, and for a bedroom community, the reverse is true. The differentation between counties in highly urban and metropolitan regions can be quite distinct with the cost of housing playing a significant role. In predominantly rural areas where employment opportunities can often be concentrated in a few large comunities, the differentation between work center and bedroom community can also be quite marked.

Commuter flows related directly to two major influences: the number of job opportunities at specific destinations and the distance in driving time that these destinations are from the place of residence. As illustrated in Table 5-11, in the fourth quarter of 2005, the major work destinations for commuting residents of Platte County were the adjacent areas of Laramie County (36.5%), Goshen County (10.6%), Natrona County (12.2%) and Converse County (10.4%). The major counties of origin for persons commuting to work in Platte County were Laramie County (11.5%), Goshen County (10.5%), Albany County (5%) and Natrona County (4.6%). Table 5-12 shows the major work destinations for commuting residents of Goshen County were the adjacent areas of Laramie County (34.4%), Natrona County (11.9%), Platte County (10.7%) and Albany County (10.1%). The major counties of origin for persons commuting to work in Goshen County were Platte County (9.2%), Laramie County (5.5%), Converse County (4.1%) and Natrona County (3.2%). Note that in the case of both Platte and Goshen counties that the county of origin for more than half of inflowing commuters was “unknown”.

The data shows that commuting flows are heavily influenced by nearby large communities accessible via I-25 such as Cheyenne (Laramie County) to the south, and Casper (Natrona County) to the north.

Table 5-11 Platte County: Commuting Flows, 4th Quarter, 2005 By Number of Commuters

Destination	Inflow	Inflow %	Outflow	Outflow %
Albany	42	4.90%	100	9.20%
Big Horn	5	0.60%	5	0.50%
Campbell	28	3.20%	45	4.10%
Carbon	6	0.70%	11	1.00%
Converse	25	2.90%	114	10.40%
Crook	3	0.30%	5	0.50%
Fremont	9	1.00%	14	1.30%
Goshen	91	10.50%	116	10.60%
Hot Springs	3	0.30%	3	0.30%
Johnson	7	0.80%	4	0.40%
Laramie	99	11.50%	398	36.50%
Lincoln	1	0.10%	3	0.30%
Natrona	40	4.60%	133	12.20%
Niobrara	6	0.70%	12	1.10%
Park	2	0.20%	9	0.80%
Sheridan	19	2.20%	12	1.10%
Sublette	1	0.10%	4	0.40%
Sweetwater	12	1.40%	25	2.30%
Teton	8	0.90%	1	0.10%
Uinta	3	0.30%	3	0.30%
Washakie	6	0.70%		0.00%
Weston	2	0.20%	6	0.50%
Unknown	445	51.60%	68	6.20%
Total	863		1,091	

Source: Commuting Pattern Data Model Methodology and County-Level Output Tables, Wyoming Department of Employment Research & Planning, February 12, 2007

Table 5-12 Goshen County: Commuting Flows, 4th Quarter, 2005 By Number of Commuters

Destination	Inflow	Inflow %	Outflow	Outflow %
Albany	19	1.50%	86	10.10%
Big Horn	4	0.30%	2	0.20%
Campbell	12	1.00%	77	9.10%
Carbon	11	0.90%	12	1.40%
Converse	52	4.10%	38	4.50%
Crook	18	1.40%	3	0.40%
Fremont	22	1.70%	8	0.90%
Goshen	0	0.00%	0	0.00%
Hot Springs	0	0.00%	2	0.20%
Johnson	5	0.40%	1	0.10%
Laramie	70	5.50%	292	34.40%
Lincoln	3	0.20%	2	0.20%
Natrona	40	3.20%	101	11.90%
Niobrara	21	1.70%	48	5.70%
Park	11	0.90%	9	1.10%
Platte	116	9.20%	91	10.70%
Sheridan	3	0.20%	7	0.80%
Sublette	2	0.20%	3	0.40%
Sweetwater	4	0.30%	13	1.50%
Teton	0	0.00%	5	0.60%
Uinta	9	0.70%	4	0.50%
Washakie	20	1.60%	3	0.40%
Weston	25	2.00%	19	2.20%
Unknown	795	63.00%	22	2.60%
Total	1,262		848	

Source: Commuting Pattern Data Model Methodology and County-Level Output Tables, Wyoming Department of Employment Research & Planning, February 12, 2007

The U.S. Bureau of Economic Analysis estimates personal income by place of work and place of residence at the county level. Estimates are developed on how much money is earned in a county by persons working in a county (earnings by place of work) versus earnings by those residing in the county (earnings by place of residence). Subtracting one value from the other (after adjusting for contributions to social insurance (i.e., FICA and Medicare payroll taxes) gives the "net residence adjustment", an indicator of the role the county plays as a "bedroom community" or "work center." Where earnings by place of residence exceed earnings by place of work, the net residence adjustment will be positive and the community is classified as a bedroom community. Conversely, where earnings by place of work exceed earnings by place of residence, the net residence adjusment will be negative and the community is classified as a work center. In cases where there is a relative balance between inflow and outflow of income, the county has a jobs-to-housing balance. The role a county plays as a

bedroom community or work center can change over time as the location of residences and job opportunities change.

Information published by the U.S. Bureau of Economic Analysis regarding the net flow of income earned by residents of Platte and Goshen counties is displayed in Tables 5-13 and 5-14, respectively.

Table 5-13 Personal Income and Residence Adjustment for Platte County

Component of Personal Income (Thousands of $)	2005	2006	2007
Earnings by place of work	171,268	165,772	171,988
Less: Contributions for government social insurance	18,884	20,280	21,613
Plus: Adjustment for residence	**657**	**2,257**	**3,115**
Equals: Net earnings by place of residence	153,041	147,749	153,490

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce

Table 5-14 Personal Income and Residence Adjustment for Goshen County

Component of Personal Income (Thousands of $)	2005	2006	2007
Earnings by place of work	187,191	187,653	197,685
Less: Contributions for government social insurance	18,542	20,631	22,105
Plus: Adjustment for residence	**27,612**	**29,852**	**31,909**

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce

Between 2005 and 2007, the proportion of income earned by residents of Platte County who also reside in the county declined slightly, from 99.6% in 2005 to 98% in 2007, implying that the share of income earned by Platte County residents working outside Platte County is low (~2%) but increasing. A similar trend was apparent for Goshen County. Between 2005 and 2007, the proportion of income earned by residents of Goshen County who also reside in the county declined from 85.9% in 2005 to 84.6% in 2007. So a higher share of about 15% of income earned by residents of Goshen County was earned working outside the county. Together these numbers imply that more than 10% of income earned by residents of the combined two-county study region was earned in workplaces located outside Platte and Goshen counties. Earning ratios of this magnitude are indicators that the study region should be considered more of a bedroom community than a work center.

5.3.2.6 Existing Labor Characteristics and Availability

The following sections focus on past, present, and projected employment and earnings for the construction industry in the study area.

5.3.2.6.1 General Construction Labor Characteristics

The median annual wage for persons in construction and extraction occupations for the State of Wyoming (as of March 2008) was $38,613, Platte County mean wage for carpenter wages was $39,077, approximately $464 higher than the state average.

Specialty trade contractors and heavy and civil engineering construction contractors are two of the top 10 industries expected to add the most jobs through the period to 2012. The demand for construction laborers and skilled trades people (e.g., carpenters, electricians, operating engineers, plumbers, and occupations requiring long-term on-the-job training) is also expected to increase substantially over this period. Prospects for the construction sector are also addressed in the section Future Economic Conditions.

5.3.2.7 Governmental Revenues and Finances

Assessed Property Values. The assessed value of real property is the major source of ad valorem taxes. Properties are assessed at both the state and local (county) level: the state assesses the value of utility and mineral properties, while the counties assess residential, agricultural, commercial, and industrial land and improvements.

The total assesed value of real property in 2008 for Platte County was $135 Million as displayed in Table 5-15A and 5-15B**.** The county accounted for about .62% percent of the assessed value of all real property in the state.

Table 5-15A Assessed Valuation by Type of Property by County 2008 ($ millions)

County	Agricul-tural Land	Commercial Land, Improvements and Personal Property	Residential Land, Improvements and Personal Property	Industrial Property	Non Minerals (Utilities, Railroads and Airlines)	Minerals	Total
Platte	9.8	9.4	41.4	1.6	72.4	1.3	135.8
Goshen	18.2	12.8	58.8	3.7	26.7	0.4	120.5
State	189.3	1,034.50	4,272.20	1,639.20	917.8	13,845.20	21,898.30

Source: State of Wyoming Department of Revenue

Table 15-B Locally Assessed and State Assessed Valuation ($ millions)

County	Locally Assessed Valuation	State Assessed Valuation	Total
Platte	62.0	73.7	135.8
Goshen	93.4	27.0	120.5
Wyoming	7,135.3	14,763.0	21,898.3

Source: State of Wyoming Department of Revenue

Of the six types of property assessments described in Table 5-16 for the study area, the greatest contribution is associated with non-mineral properties, which accounted for 53.3 % of the total assessed value, followed by residential land (30.47%) with each of the remaining property categories contributing 7% or less (Table 5-16).

Table 5-16 Contribution by Type of Property by County (2008)

County	Agricultural Land	Commercial Land, Improvements and Personal Property	Residential Land, Improvements and Personal Property	Industrial Property	Non Minerals (Utilities, Railroads and Airlines)	Minerals	Total
Platte	7.20%	6.89%	30.47%	1.14%	53.30%	1%	100%
Goshen	15.10%	10.60%	48.80%	3.05%	22%	2.99%	100%
State	0.86%	4.72%	19.51%	7.49%	4.19%	63.22%	100%

Ad valorem taxes (property taxes) levied by each of the counties in 2008 are shown in Table 5-17. The greatest share is assigned to education: 66.3 percent ($6,429,049) in Platte County. Funds under the direct control of the county comprise 16.8 percent ($1,629,639) in Platte County. The amount of ad valorem taxes levies in 2008 increased from the 2007 level by 4.7 percent in Platte County.

Table-17 Ad Valorem Taxes Levied Platte and Goshen County 2008

	Platte County		Goshen County	
Category	Mills	Amount	Mills	Amount
County Tax Levies	12	$1,629,639	12	$1,455,997
Fair Operations	0.972	$132,001	0.8	$96,400
Other General Fund	8.761	$1,189,772	9.5	$1,144,747
Library Operation	2.267	$307,866	1.7	$204,850
Municipal Tax Levies		$234,153		$298,411
Special District Tax Levies		$1,403,090		$671,213
All Education Tax Levies		$6,429,049		$5,364,995
Grand Total All Taxes Levies	71.397	$9,695,931	70.07	$8,443,365
Percent Change Over 2007		4.68%		10.02%

Source: State of Wyoming Department of Revenue (2008)

Ad valorem taxes (calculated by applying county-and use-specific mill rates to the assessed value) support a number of county and municipal operations including airports, fire protection, hospitals, libraries, museums, public health, recreational systems, special districts, and education. Table 5-18 displays the major beneficiaries of property taxes in the state.

Table 5-18 Beneficiaries of Property Tax Collection in Wyoming (2008)

Beneficiary	Percent of Total
Schools	54.14%
Counties	18.28%
Foundation Program (for schools)	18.66%
Special Districts	7.40%
Municipalities	1.52%

Source: State of Wyoming Department of Revenue 2008.

Sales, Use and Lodging Taxes. Sales and use taxes comprise the large majority of excise tax revenues collected by the state. Of all excise taxes collected, 53 percent are distributed to the state general fund with the remaining 47 percent distributed to local governments. Local governments can also impose a lodging tax. Average tax rates for Platte and Goshen Counties are shown in Table 5-19. Sales, use and lodgoing tax collections in the study area are summarized in Table 5-20 and Figures 5-10 and 5-11.

Table 5-19 State and County Sales, Use, and Lodging Tax Rates

County	State Tax Rate	General Purpose Option	Total Sales and Use Tax Rate	Lodging Tax Rate	Total Tax Rate	Total Tax Rate for Study Area
Platte	4%	1%	5%	2%*	7%*	5%
Goshen	4%	1%	5.25%	3%	8.25%	7.63%

* Guernsey is the only town in Platte County that imposes a Lodging tax. Therefore, the total tax rate for Platte County excluding the town of Guernsey would be 5%.

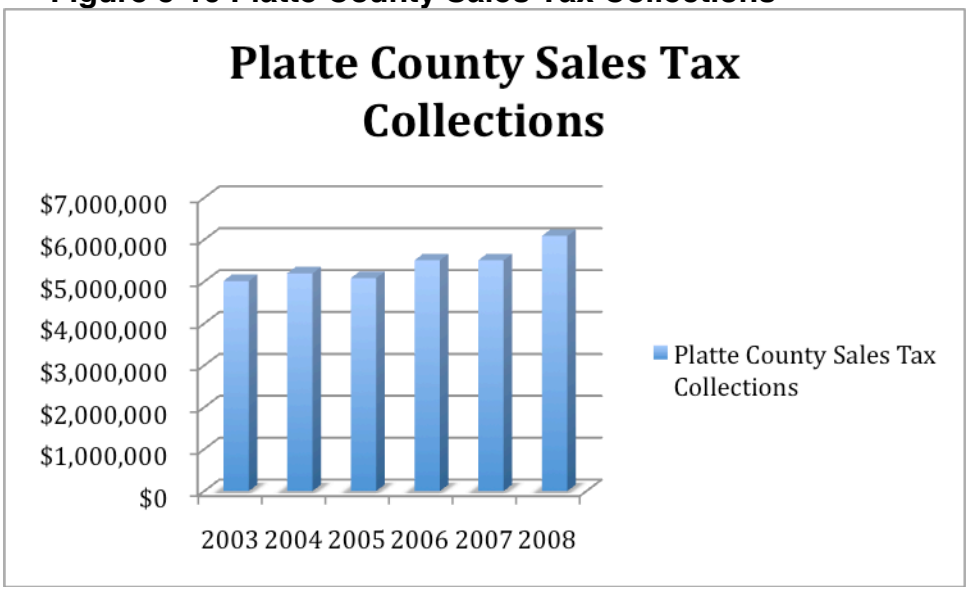
Sales Tax. The state-imposed tax rate is 4 percent, and the collections are distributed 69 percent to the state and 31 percent to the respective county. Each of the counties of the study area imposes a 1 percent optional sales tax, of which the revenues (less administrative costs of about 1 percent) are returned by the state to the county of origin. Total sales tax collections for the years 2003 through 2008 for Platte and Goshen County declined slightly in 2005 but for the most part exhibited a steady increase over the 6 year span. The increase at the state level was an increase of $345,246,645 over the 6 year span which is a 68.5% increase.

Table 5-20 Sales, Use and Lodging Tax Collection 2003-2008

	2003	2004	2005	2006	2007	2008
Sales Tax						
Platte County	$5,014,181	5,197,429	$5,083,680	$5,508,289	$5,507,385	$6,089,915
Goshen County	$5,452,248	5,513,830	$5,488,268	$6,468,639	$5,970,202	$6,955,569
State of Wyoming	$503,970,199	$551,668,565	$603,951,795	$719,115,277	$799,254,374	$849,216,844
Use Tax						
Platte County	$1,210,538	$1,323,709	$1,625,825	$1,793,338	$1,993,242	$2,052,598
Goshen County	$814,286	$858,903	$498,990	$922,099	$907,976	$1,055,558
State of Wyoming	$54,886,020	$58,387,269	$64,326,659	$82,158,509	$113,045,113	$124,173,967
Lodging Tax						
Platte County	$4,254	$3,944	$4,854	$5,438	$6,147	$6,637
Goshen County	$44,885	$41,335	$44,505	$47,017	$52,860	$54,905
State of Wyoming	$4,108,475	$4,738,192	$4,960,822	$5,859,863	$6,843,052	$7,825,924

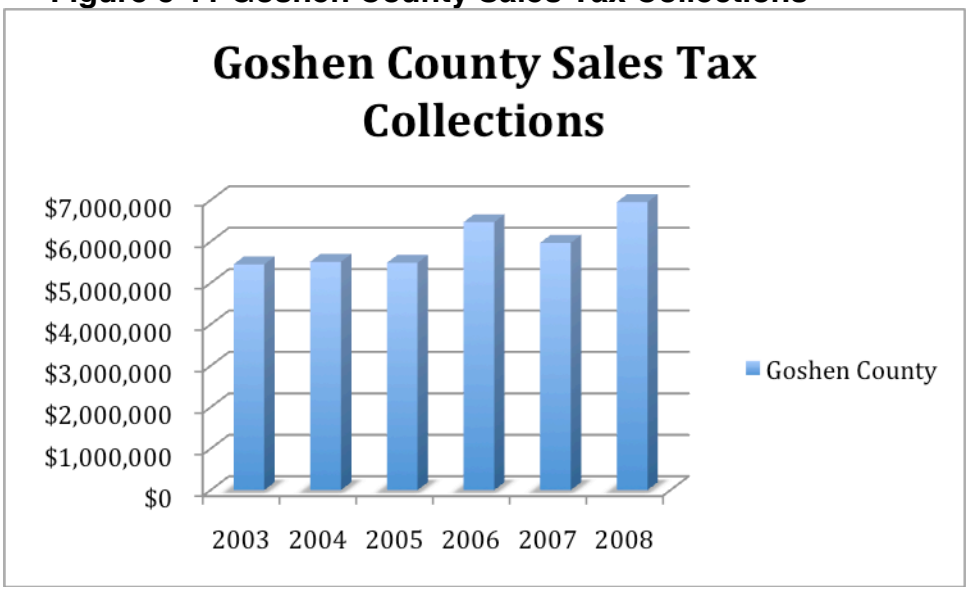
Source: Wyoming Department of Administration and Information (2008)

Figure 5-10 Platte County Sales Tax Collections



Source: Wyoming Department of Administration and Information, 2008.

Figure 5-11 Goshen County Sales Tax Collections



Source: Wyoming Department of Administration and Information (2008)

Use Tax. A state use tax is imposed on purchases made outside a taxing jurisdiction for first time use, storage, or other consumption within that jurisdiction thus preventing sales tax avoidance. Use tax is a complement to sales tax. Effective January 1, 1981, the adoption of an optional sales tax required a change in the use tax rate of equal amount. The state-imposed tax rate is 4 percent. State use tax collections are shared between state government and the county of origin on the same distribution basis as sales tax. Use tax collections by year and county are shown in Table 5-20.

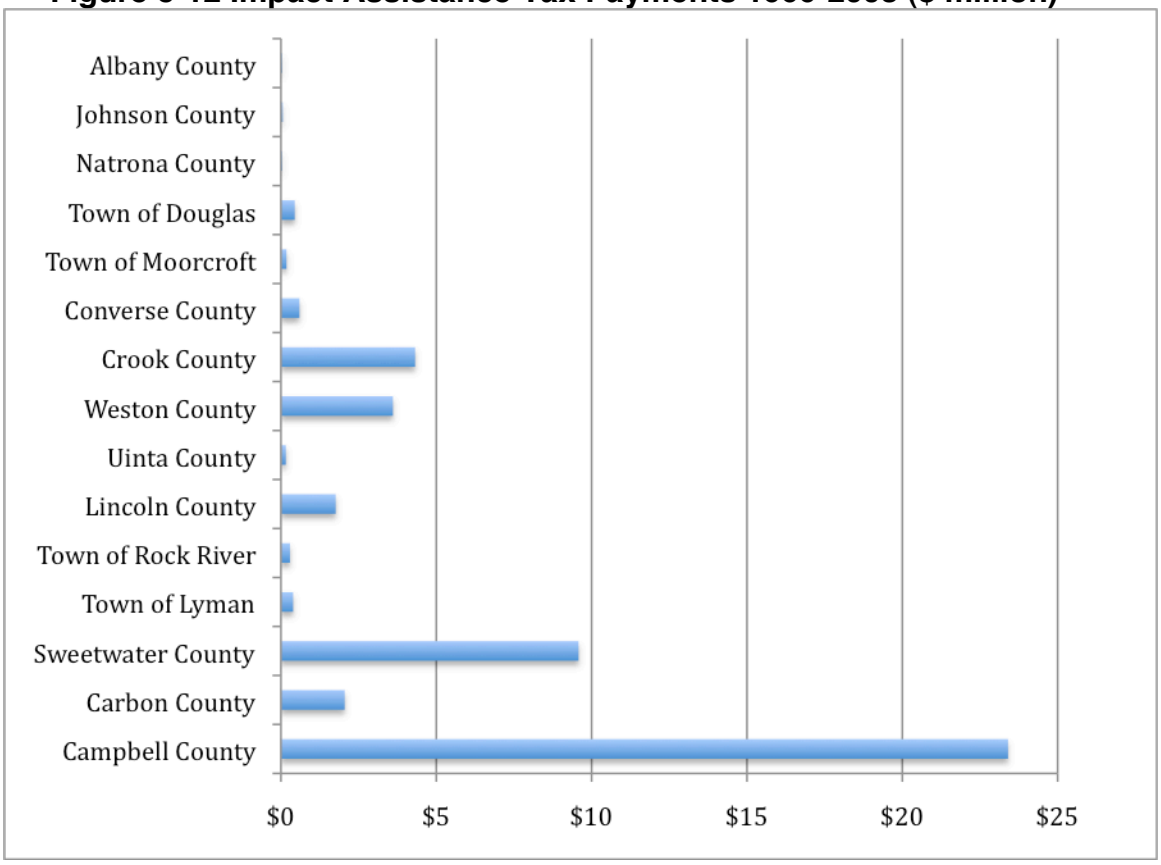
Lodging Tax. Cities, towns, and counties may impose an excise tax of up to 4 percent on all sleeping accomodations for guests staying less than 30 days. All tax collections, less state administrative costs, are distributed to the taxing jurisdiction. At least 90 percent of the tax distributions must be used to promote travel and tourism. The tax rate for Platte County is shown In Table 5-19, and tax collections are shown in Table 5-20.

Industrial Siting Impact Assistance Funds. Under the Industrial Development and Siting Statues (Wyoming States [W.S.] 35-12-101 through 35-12-109), the criteria that potential industrial facilities must meet in order to be awarded a construction permit [found at W.S. 35-12-101 (A)(vii)] also qualify a county or town to receive industrial impact assistance tax payments. The impact assistance payments are distributed to the county treasurer, and the county treasurer distributes to the county and to the cities and towns within the county based on a ratio established by the ISC during a public hearing held in accordance with W.S. 35-12-110. The ISC reviews the distribution ratio for construction projects on a regular basis and makes appropriate adjustments. A governing body, which is primarily affected by the facility (or any person issued a

permit pursuant to W.S. 35-12-106) may petition the ISC for review and adjustment of the distribution ratio upon a showing of good cause. The impact assistance payment is in addition to all other distributions under this section, but no impact assistance payment is made for any period in which the county or counties are not imposing at least a 1 percent tax authorized by W.S. 39-15-204(a)(i) and 39-16-204(a)(i) or at least a 2 percent sales tax authorized under W.S. 39-15-204(a)(i), (iii) and (vi) and at least a total of a 2 percent use tax authorized under W.S. 39-16-204(a)(i), (ii) and (v). The project is deemed to be located in the county in which a majority of the construction costs will be expended, provided that upon a request from the county commissioners of any adjoining county to the ISC, the council may determine that the social and economic impacts from construction of the industrial facility or federal or state government project upon the adjoining county are significant and establish the ratio of impacts between the counties and certify that ratio to the state treasurer who will thereafter distribute the impact assistance payment to the county pursuant to that ratio.

The program of industrial impact assistance tax payments is designed to assist cities, towns, or counties in deflecting the impact that a major industrial project may have on community resources. The program measures the increase in tax revenue caused by the industrial project and matches that increase with additional monies from the state General Fund to help communities respond to project-related impacts. This tax distribution is transferred from the state General Fund, via the office of the State Treasurer, directly to county treasurers' offices. Figure 5-12 illustrates the impact assistance tax payments received for fiscal years (FY) 1999 through 2008 by county and cities or towns. These totals represent the amount of extra revenue counties, cities and towns received in direct proportion to any increase in their tax collection to mitigate project-related impacts.

Figure 5-12 Impact Assistance Tax Payments 1999-2008 ($ million)



Source: Wyoming Legislative Service Office

The large majority of aggregate payments made over the 10 year period were to Campbell County, which received $23 Million (49.9% of total aggregate payments). The next largest amounts were paid to Sweetwater County (almost $10 million and 20% of the aggregate total), Crook County ($4 Million and 9.2%), Weston County ($3.6Million and 7.7%), and Carbon County($2Milion and 4.3%). Large payments received by Campbell County in 2006 and 2007 ($9.9 Million and $8.1 Million, respectively) were associated with construction of coal-fired power plants.

Forecasts of the monthly impact assistance payments to Platte County are presented in **Appendix B.** These forecasts (made on a monthly basis) are based on the difference between two values: a "base period amount" and a projected value derived from a simple linear regression of historical value. The "base period amount" is the monthly average value of sales and use tax revenues returned to the county, and all municipalities within it, over the preceding 4 years. The projected monthly value is extrapolated from the least squares fit linear regression using the monthly historic values from the preceding 4 years. Where the projected value exceeds the base period amount, the

difference is the projected monthly impact assistance payment disbursed from the state general fund to the county and municipalities.

5.3.2.8 Future Economic Conditions

Rule I Section 7(i)(ii)(A)
(A) Employment projections by major sector

Economic Projections. The following description of potential future economic conditions in the state is derived from the report entitled 10 Year Outlook Wyoming Economic and Demographic Forecast 2007 to 2016 prepared by the Economic Analysis Division of the Wyoming Department of Administration and Information in 2007.

Wyoming's economy is largely driven by natural resources. In 2005, the mining industry contributed approximately one-third of both the state's total earnings growth and job growth. In addition, the multiplier effect associated with the mining industry results in stimuli in many other industries such as wholesale trade, transportation, and professional and business services. The total job growth rate of 4.9 percent in 2006 was the second highest in the U.S., and the personal income growth rate of 10.4 percent in 2006 was virtually the highest. The mining industry provides high-paying jobs, and as such, its strong presence in Wyoming means that income growth in the state is closely associated with mining activity. Housing permits in Wyoming have outpaced the western United States and the United States as a whole since 2003. Residential construction is expected to slow down; however, housing in the state is expected to remain very affordable compared to the national average.

Wyoming's population is aging rapidly and is expected to continue to do so. In 2000, the median age of 36.2 in the state passed the national average of 35.3. By 2010, the projected median age of 39.3 for Wyoming will be 2.3 years older than the U.S. level, and the size of the older population (age 65 and over) will reach over 81,000 by 2014 compared to today's 61,000.

Although mining jobs are expected to slow to more sustainable levels, the increased demand for the natural resources in the state from national markets will help provide a steady source of mining jobs and revenues for the state. So in the near and midterm, the energy industry will continue to support strong, but decelerating growth for the state economy. The state's labor market and the high paying nature of energy related jobs will support strong wage and income growth. Over the long term, Wyoming's very low industrial diversity and/or high dependence on the energy sector will be a limiting factor, particularly if energy prices drop lower and faster than expected.

The state's future prospects will be somewhat limited by a job market that fails to attract high-growth job opportunities. Although migration has recently reversed to

a positive trend, many younger workers will move to other states with more versatile job opportunities in Wyoming is the least diversified state in the nation in terms of employment distribution to the nation.

Mining Industry. The mining sector has been the most significant economic and revenue player in Wyoming's recent history. After it experienced a boom in the late 1970s, a bust in the mid-1980s, and a slow and steady decline in the 1990s, the mining sector has demonstrated strong growth since 2000. The 33,000 mining jobs in 1981 were the highest level on record, and tallied 14.7 percent of total Wyoming nonagricultural wage and salary employment. However, by 1999, the number shrank to only 15,500. The employment increased 5.6 percent in 2000 and another 13 percent in 2001, holding up well in 2003 as mining prices rebounded. The number of mining jobs went up again over 10 percent annually in 2004. The energy-driven growth continues, as low industrial diversity ties the state's fortunes to mining extraction, which is dominated by natural gas production. Multiplier effects also create jobs in transportation, distribution, construction, and consumer-related industries, and the state benefits from a surge in mineral revenue. The outlook for future revenue and jobs from the state's mining industry looks strong with consistent growth anticipated.

Wyoming benefits from increased mining activity in many ways. First, increased demand for oil, natural gas, and coal means increased mineral production revenue and, sales and use tax collections for both state and local governments. In addition, because mining job salaries are over twice as much as the average for all industries, increased demand fore mining employment trickles down into the economy through increased per capita income and increased levels of consumer spending. On the other hand, the state's economy and revenue also fluctuate significantly along with the rise and fall of mining prices.

Construction. Nationally, strong real estate and housing industries have been constant throughout the economy's ebbs and flows in recent years. The housing boom's economic contribution has been enormous, accounting for approximately one-fourth of real gross domestic product (GDP) growth over the past 5 years. The direct effects from housing are through construction activity, real estate transactions, and mortgage finance. The multiplier benefits are substantial, such as demand in numerous supplying industries and the income earned from construction-related industries drives spending elsewhere in the economy. As the fastest growing sector in the 1990s, the construction industry in Wyoming added 7,100 jobs in that decade at an annual average rate of 5.2 percent. Again, for 2002, the construction sector remained the strongest industry in the state, expanding by 1.9 percent due to historically low interest rates.

The residential construction boom directly causes the substantial job growth in the general building and specialty trades subsectors. From 1992 to 2002, total residential home permits averaged nearly 1,800 units per year, compared to an annual range of 500 to 800 units from 1987 to 1991. However, the number of

permits expanded dramatically to 2,877 in 2003 and 3,318 in 2004. The single-family permits nearly doubled from 1,485 houses in 2001 to 2,815 in 2004, and 2,328 permits issued in 2003 broke the record set in 1980.

While an oil industry boom accompanied by an inflow of migrants drove the large amount of any housing construction in the early 1980s, the current housing market in the state is largely driven by price appreciations, much like the national trend. The annual net migration (in-migration less out-migration) to Wyoming was over 10,000 in the late 1970s and early 1980s but only a couple of thousand in recent years. A few local markets in the state are trying to meet additional worker demand due to the booming mining exploration such as in Rock Springs, Pinedale, Casper and Gillette. On the other hand, in certain areas, rental markets are getting soft as a result of additional new housing. Many residents have taken advantage of low mortgage rates and moved to new houses, leaving their previous homes for sale or rent. In Laramie County, for instance, the number of residential units for sale in the first quarter of 2005 was more than twice as many as 2003, and the number of vacant units for rent almost trippled during the same period. Consequently, rental rates declined.

Overall, job growth in the construction industry was expected to increase in 2005 after it declined 3.4 percent in the prior 2 years, albeit at a slower rate of around 4 percent annually. Total employment in construction will surpass the mining industry again by the end of the forecasting period, and 1,700 new jobs are expected to be created during this time span.

Retail Sales. As the third largest sector in Wyoming's economy, the retail trade industry experienced fast job growth in the first half of 1990s, averaging over 2 percent each year. However, it has slowed down to only about 1 percent annually since then, largely due to out migration from the state. After experiencing a 3.4 percent boost in 2000, the retail trade industry employment did not change much in the next 5 years. The gain of 420 jobs or, 1.4 percent in 2006 was the fastest growth since 2000. In the near future, employment in this sector is expected to expand at a modest rate of approximately 1 percent per year.

While the average increase for the fiscal year 1991 to 2000 period was 7.3 percent, the annual non-auto taxable retail sales were up only 3.1 percent from fiscal year 2001 to fiscal year 2003. However, mostly driven by strong natural gas exploration, expanding housing market, and non in-migration, the retail sales were robust again. For fiscal year 2004, both the taxable non-auto and auto retail sales continued the strong pace in fiscal year 2005 and increased another 7.2 percent from the previous year's level. However, seemingly dragged down by the high gasoline prices, the automobile sales in the state almost came to a virtual stall, and edged up a mere 1.4 percent during the past fiscal year. Much like the nation, the real concern for many retailers in the state is how to continue competing with remote sellers who do not have to charge sales tax.

Services. The economy is continuing its long-term trend of shifting more toward a service-oriented rather than being good-oriented. Much like the rest of the country, the service industries grew continually in Wyoming, even during the 1980s recession. The upward pace accelerated in the 1990s, at an annual rate of 3.6 percent. After it averaged 2.4 percent growth rate annually between 2000 and 2005, the total employment for selected service industries climbed 5.2 percent in 2006, the fastest growth since 1992. Mainly caused by the decrease in food services and administrative services, overall employment increased only 1.6 percent in 2003 and 2.1 percent in 2004. The services sectors are forecasted to be the fastest growing industry, both in terms of growth rate and total number of new jobs. Business, social assistance and health services will be the main drivers. Despite the structural differences between Wyoming's and the national economy, the growing pace in the service industries is similar for both. The service industry was and will be the fastest growing sector in the national economy as it continues to undergo a structural shift from a goods producing to a service producing economy. Wyoming's total service producing sectors are expected to add nearly 36,000 jobs in the next 10 years.

Tourism. With over $1 billion in direct expenditures and 28,000 jobs, Wyoming's travel and tourism industry is an important part of the state's heritage and overall economy, particularly for the northwest region of the state. The primary attractions for tourists are Yellowstone National Park and the Grand Teton National Park. Each year, millions of people from all over the world visit them. However, tourism itself is not classified as an independent or separate economic sector, rather it is mostly included in leisure & hospitality and in certain retail trade industries. Its economic effect crosses many retail trade and service-related sectors such as gasoline stations, general merchandise stores, arts, entertainments and recreation services. Unfortunately, most jobs directly connected with tourism are mostly lower skilled and lower paying by nature.

Looking into the future, travel and tourism in Wyoming may not deviate much from the past trend (i.e., an extremely slow increase). However, there are at least a few factors that could work to the advantage of the state's tourism industry. First, the weakened American currency may attract more international tourists. Second, the baby-boom generation (both between 1946 and 1964) is starting to retire or will retire in the next few years, assuming the elderly population is more interested in natural amenities than the younger generation. Third, the state's rising revenue and budget surplus are creating an opportunity to protect the state's attractiveness and enhance area attractions. However, the jobs created in the tourism industry are mostly seasonal and typically low paying, offering little in the way of long-term growth for the state.

Government. As the largest employment sector for Wyoming, the government jobs sector is one of the mainstays in the state's economy, particularly in the southeast region. It also serves as a big stabilizer to the overall economy.

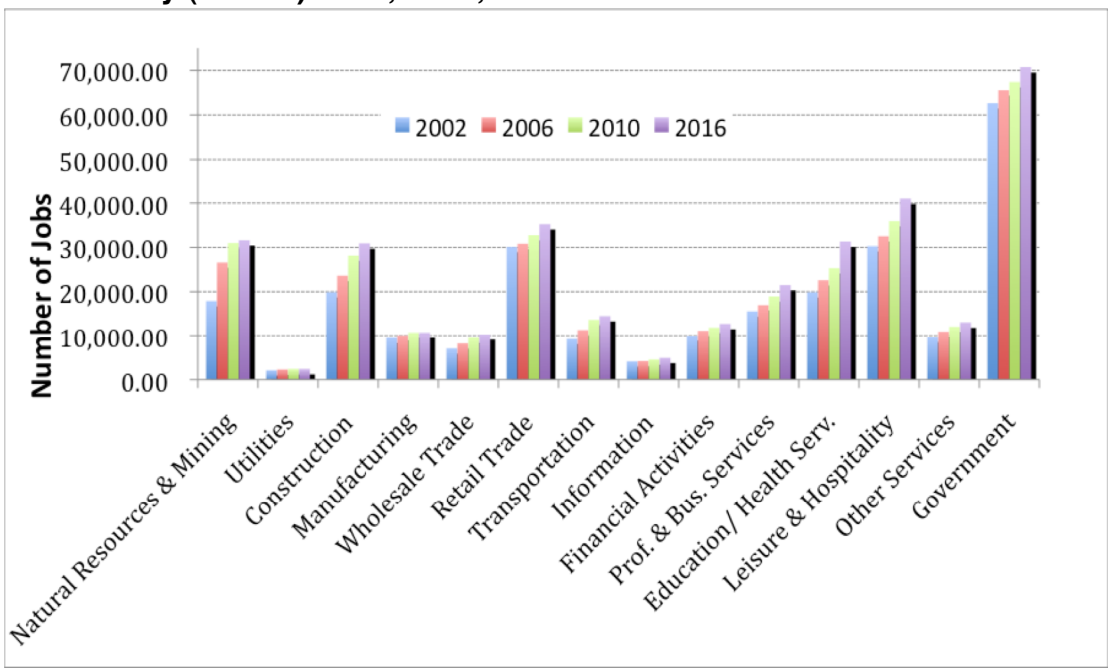
During Wyoming's economic bust period of the 1980s, government employment only experienced a 1-year decline in 1986, while the state's total employment suffered an 18 percent contraction from 1981 to 1987.

Because of the nature of a sparsely distributed population, state and local governments have to hire a relatively large number of employees to serve the residents, from public schools, fire districts, to road maintenance. It was not surprising to see that the proportion of Wyoming's state and local government full-time employees was one of the highest in the country in 2006, at 890 per 10,000 population, while the national average was 540 employees. Other states with higher state and local government employee rates were also states with large land areas and small population such as Alaska, New Mexico and Nebraska. The lower proportions of government employment are in states with a high population density such as Pennsylvania and Massachusetts. Wyoming also ranked the highest in terms of capita state and local government expenditures in 2006.

The government sector provided 65,500 jobs, or less than 25% of the total, in 2006 to Wyoming's economy. While both Federal and state government employment has contracted, local government (including school districts and hospitals) added 700 jobs for the year, which drove the total government growth to 0.6 percent in 2006. It was also one of the slowest growing industries in the 1990s, during which State government experienced a slight increase while Federal government recorded a minor decline during the same period. From 2000 to 2006, government in Wyoming created 4,700 jobs for an annual growth rate of 1.3 percent, compared with the overall growth rate of 2.5 percent for total state employment. Over the forecast period, the government sector is expected to add 5,200 new jobs, for a total of 70,700 jobs in 2016. Most of the growth is projected to occur in local government, with slower growth for state government and no change for Federal government.

Future Employment Growth. As indicated in Figure 5-13, over the period 2006 through 2016, nonagricultural employment in the state is forecasted to increase by 1.6 percent annually, on average. Construction is expected to increase by 2.7 percent, professional and business services by 2.4 percent, education and health care by 3.3 percent, leisure and hospitality by 2.4 percent, and other services by 1.8 percent. Some of the sectors with the lowest growth rates include utilities, which will increase by 0.5 percent, manufacturing by 0.6 percent, and government by 0.8 percent.

Figure 5-13 Wyoming Nonagricultural Wage & Salary Employment by Industry (NAICS) 2002, 2006, 2010 and 2016



Source: Wyoming Department of Administration and Information- Economic Analysis Division

As shown in Table 5-21, between 2002 and 2006, real personal income in the state of Wyoming increased at an average annual rate of 5.4 percent. During the period 2006 to 2016, real personal income in the state is forecasted to increase at an annual rate of 6.4 percent. The projected rate of growth in the civilian labor force between 2006 and 2016 is 1.3 percent.

Table 5-21 Wyoming Personal Income 2002, 2006, 2010 and 2016

	2002	2006	2010	2016
Total Personal Income	15,463.33	20,948.05	26,716.50	34,481.47
Real Personal Income (2000 Dollars)	14,995.59	18,472.03	21,927.25	24,985.22
Per Capita Personal Income (2000 Dollars)	30,053.00	35,868.00	41,618.00	44,372.00
Median Household Income	39,963.00	48,351.00	55,648.00	65,626.00

5.3.3 Housing

Rule I Section 7(iv) – Housing. An analysis of housing facilities by type, including a quantitative evaluation of the number of units in the area and a discussion of vacancy rates, costs, and rental rates of the units. The analysis should include geographic location, including a quantitative evaluation of the number of units in the area required by the construction and operation of the proposed industrial facility and a discussion of the effects of the proposed industrial facility on

vacancy rates, costs, and rental rates of the units. Specific housing programs proposed by the applicant should be described in detail.

This section addresses six major topics: (1) the composition of the existing housing, (2) housing inventory and residential construction trends, (3) home value and rental housing costs, (4) rental housing vacancies, (5) housing needs, and (6) temporary accommodation.

5.3.3.1 Existing Housing Stock in the Study Area

Tables 5-22 through 5-24 show information on the housing stock in the study area and state of Wyoming in 2000. Platte County contained a total of 3,625 housing units (occupied and vacant) in 2007. The State of Wyoming had 242,332 housing units (occupied and vacant) in 2007. Total housing units in Platte County in 2000 (occupied and vacant) were 4,528 of which 80.1% were occupied and 19.9% were vacant. Total housing units in Wheatland in 2000 were 3,302 of which 81% were occupied and 19% were vacant. Total housing units in Chugwater in 2000 were 216 units of which 74.1% were occupied and 25.9% were vacant.

Table 5-22 Housing Stock, Occupancy and Tenure by Percentage (2000)

	Occupied	Owner	Renter	Vacant
Wyoming	85.90%	70%	30%	14.10%
Platte County	80.10%	76.00%	24%	19.90%
Wheatland	81%	76.40%	23.60%	19%
Chugwater	74.10%	80%	20%	25.90%

Source: US Census Bureau

Table 5-23 Housing Stock, Occupancy and Tenure by Number (2000)

	Occupied	Owner	Renter	Vacant
Wyoming	193,608	135,514	58,094	30,246
Wheatland	1,539	1,118	421	225
Chugwater	94	78	16	26
Glendo	110	86	24	55
Guernsey	504	352	152	108
Hartville	35	31	4	17
Ft. Laramie	119	95	24	30
La Grange	86	48	38	22
Lingle	210	156	54	24
Torrington	2,436	1,624	812	208
Yoder	66	60	6	18
Hawk Springs	27	19	8	13

Source: US Census Bureau

Of the occupied housing in the study area, 76% were owner occupied and the remaining 24% were rentals in 2000 in Platte County, Wyoming. Of the total housing units in Platte County 19.9% were vacant in 2000.

Table 5-24 Housing Stock by Number of Rooms (2000)

	Total Housing Units	Median Rooms
Wyoming	223,854	5.4
Wheatland	1,772	5.4
Chugwater	120	5.9
Glendo	186	5.2
Guernsey	602	5.2
Hartville	65	4.5
Ft. Laramie	159	5.1
La Grange	117	5.2
Lingle	236	6
Torrington	2,676	5.8
Yoder	83	5.8
Hawk Springs	35	6.4

5.3.3.2 Housing Inventories Past and Present

The residential construction industry is highly cyclical in nature and sensitive to the state of the economy and financial conditions. Such cycles are often national and regional in scope, although noticeable differences on a small scale can occur.

Figures 5-16 and 5-17 show numbers of housing permits issued over time in the study area and the state of Wyoming as a whole. The level of housing units authorized for construction in the state of Wyoming in 2007 (4,584 units) was the highest for the reporting period of 1980 through 2007, presented in Figure 5-17. Residential construction activity in the state consistently declined from a high point in 1981 (with over 4,000 units permitted) to 1987 when 578 units were authorized for construction. The absolute low point was reached in 1989 when a total of 555 units were authorized for construction. Construction activity picked up with consistent growth between 1989 and 1944 with a total of 2,020 units authorized for construction in the latter year. Activity remained relatively stable between 1994 and 2002, after which rapid growth occurred, culminating in an annual total of 4,584 units authorized for construction in 2007.

Figure 5-14 Total Number of Housing Permits Annually for Platte County and Goshen County

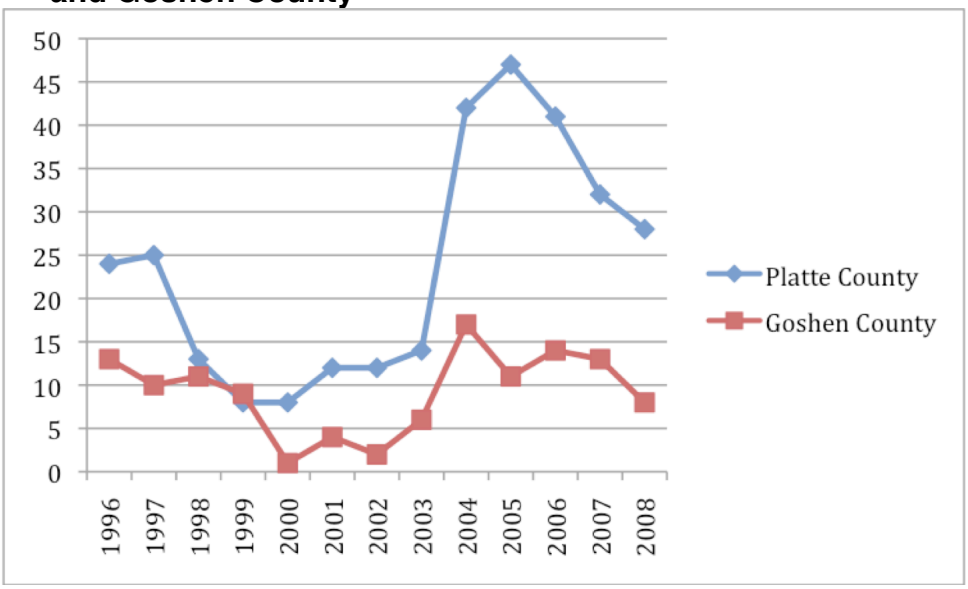
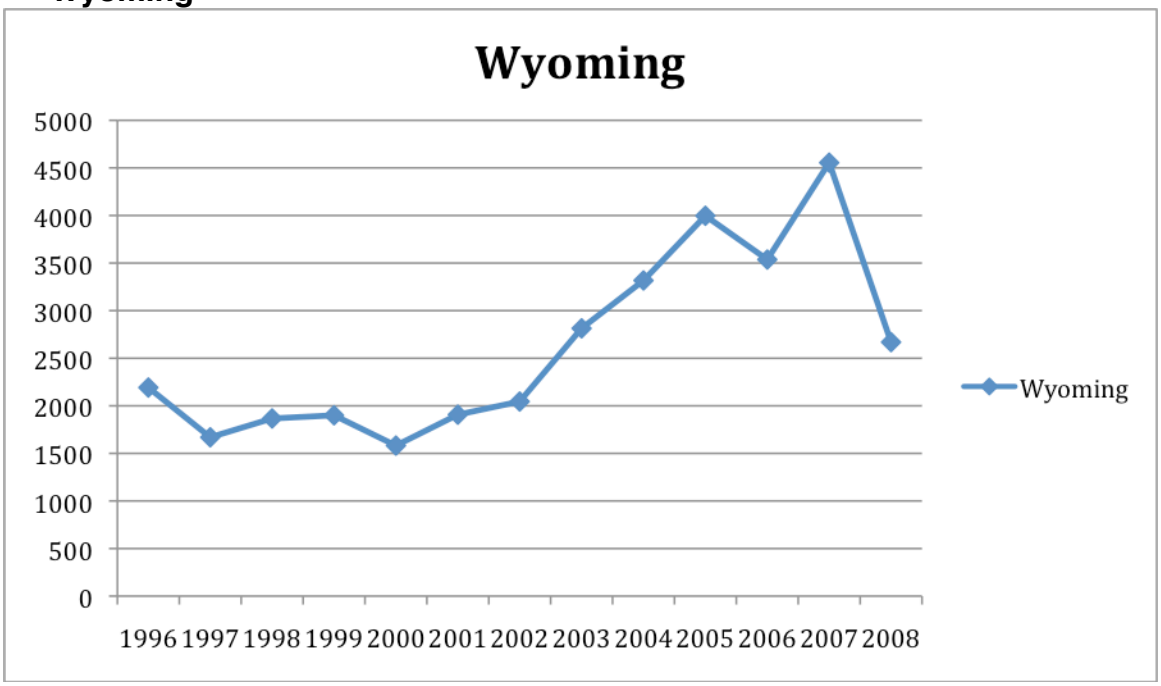


Figure 5-15 Total Number of Housing Permits Annually for the State of Wyoming

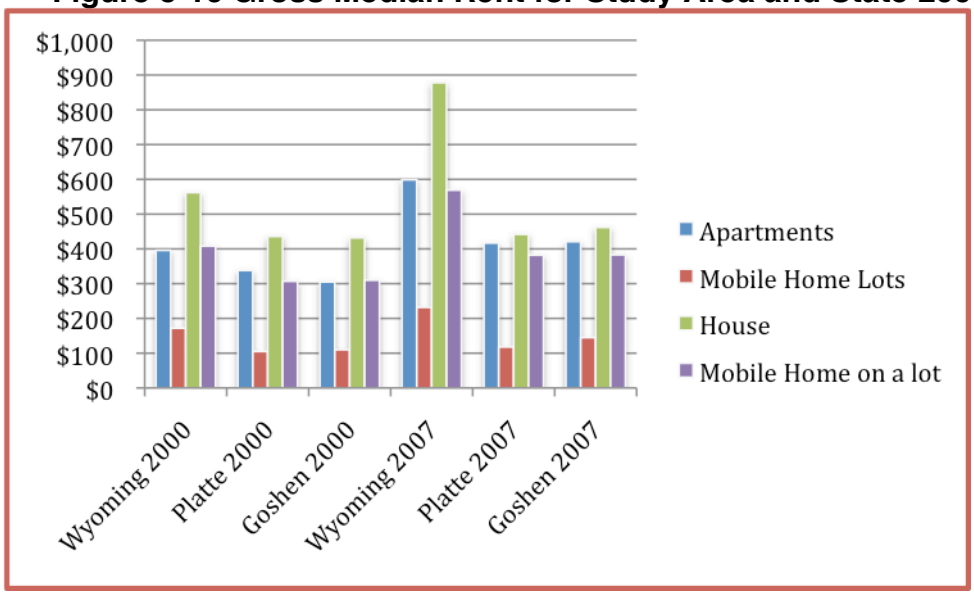


5.3.3.3 Home Value and Rental Housing Costs

Table 5-25 Median Home Value for Wyoming, Platte, Goshen and Cities in 2000

	($)
Wyoming	96,600
Platte County	84,100
Wheatland	88,500
Chugwater	59,700
Glendo	82,500
Guernsey	67,300
Goshen County	77,000
Hawk Springs	75,000
La Grange	62,500
Yoder	60,600
Torrington	76,700
Fort Laramie	54,300
Lingle	75,000

Figure 5-16 Gross Median Rent for Study Area and State 2000 and 2007



Source: U.S. Census Bureau

Table 5-26 Gross Median Rent for Study Area and State in US Dollars

	Apartments	Mobile Home Lots	House	Mobile Home on a lot
Wyoming 2000	396	172	562	408
Platte 2000	338	105	436	307
Goshen 2000	305	110	432	310
Wyoming 2007	599	232	878	569
Platte 2007	417	118	442	382
Goshen 2007	421	145	462	383

Source: Wyoming Housing Database Partnership, February 25, 2009.

Table 5-25 and 5-26 show a detailed view of median home values and gross median rent in the study area and in the State of Wyoming. In 2000, home values in communities in the study area were considerably less than the state as a whole. Similarly, gross median rent in the State of Wyoming in 2000 was $437 compared with $343.00 in Wheatland and $400 in Chugwater. In 2007 gross median rent in the State of Wyoming was $607 versus Wheatland at $412 and Chugwater at $337.

5.3.3.6 Temporary Accommodations

Temporary accommodations, for purposes of this report, are defined as hotel and motel rooms and sites for recreational vehicles (RVs).

Hotels and Motels. Based on information from the State of Wyoming Department of Tourism and Smith Travel Research, a listing of hotels and motels was compiled, by location and number of rooms is shown in Table 5-27.

Table 5-27 Hotel and Motel Rooms in The Study Area

City	Hotel/Motel	Number of Rooms
Chugwater	Buffalo Lodge and Grill	24
Wheatland	Motel 6	45
	Parkway Motel	14
	Super 8 Motel	57
	Vimbo's Motel	38
	Wyoming Motel	26
	Best Western Torchlite	50
Torrington	America's Best Value Inn	56
	Blue Lantern Motel	5
	Days Inn	45
	Grandma's Inn	14
	Holiday Inn Express	57
Total rooms in study area		431

The regional inventory of hotel and motel rooms totaled 254 rooms for Chugwater and Wheatland alone. The entire room inventory is composed of the accommodations in Chugwater, Wheatland, and Torrington. The majority of the rooms inventoried are double occupancy rooms. The vacancy rate is highly seasonal, ranging from 40 to 50 percent occupancy from May to September and 10 to 20% occupancy during the winter months.

Recreational Vehicle Sites. Many RV sites in the region provide accommodation for visits with durations of weeks or months. The total RV sites in Chugwater and Wheatland total 103 spaces. The largest number of RV sites are located in Wheatland, as shown in Table 5-28.

Table 5-28 Temporary Recreational Vehicle (RV) Sites near Project

City	RV Park	RV Sites
Chugwater:	Buffalo Lodge, Grill & RV Park	10
	Chugwater Town Park	6
	Private lots for rent	5
Wheatland:	Arrowhead RV Park	20
	Mountain View RV Park	42
	Town of Wheatland/ City Park	10
	Riverside RV Park	10
Torrington Area:	Hawk Springs Reservoir	36
	Brott's RV Park	4
	Chuck Wagon RV Park	16
	City Slickers RV Park	27
	Town of Torrington	30
	Goshen County Fairgrounds RV Park	20
	Pony Soldier RV Park	65
Total		301

5.3.4 Education

Rule I Section 7(vi) (H) – Public facilities and services availability and needs, which may include, but are not limited to: Educational facilities, including an analysis based upon enrollment per grade, physical facilities and their capacities, and other relevant factors with an assessment of the effect that the new population will have on programs and facilities.

The major topics addressed in this section are the location and characteristics of educational facilities, current and historical school enrollment, student-teacher ratios, and capital improvement and expansion plans.

5.3.4.1 Location and Characteristics of Educational Facilities

The study area consists of all Platte County School District #1 except one small school in the district.

Platte County School District #1 consists of 3 elementary schools, two middle schools and two high schools. One middle school and high school is a combined school.

The closest school to the job site would be the Chugwater Schools which consists of grades K-5, 6-8 and 9-12. The other schools in the study area are Wheatland Libbey Elementary, Wheatland West Elementary, Wheatland Middle School and Wheatland High School. Tables 5-29 and 5-30 illustrate the number

of students, number of teachers, student-teacher ratio, and ethnic makeup of Platte County schools.

Table 5-29 Selected Characteristics of Schools in Study Area

School	Students Enrolled 05/08	Teachers	Total Staff	Student to Teacher Ratio
Chugwater School System	67 Total	18	21	4
Chugwater Elementary	27	Shared between all grade levels	Shared between all grade levels	__
Chugwater Jr. High	17	Shared between all grade levels	Shared between all grade levels	__
Chugwater High School	23	Shared between all grade levels	Shared between all grade levels	__
Wheatland Libbey Elementary	217	14	23	15.5
Wheatland West Elementary	220	23	35	9.6
Wheatland Middle School	215	24	33	9
Wheatland High School	304	32	40	9.5

Source: Platte County School District #1 Office

Table 5-30 Enrollment by Race, Revenue and Expenditures in Platte County School Dist #1 in 2008

	Platte County School Dist #1
American Indian	3
Asian/ Pacific Islander	4
Black	6
Hispanic	84
White	992
2007 -08 General Fund Revenues by Source (%)	
Local	21.73
County	6.6
State	71.67
Federal	0
Revenue per Student	$14,890
General Fund Expenditures (%)	
Instruction	61.17
Instructional Support	10.51
General Support	28.32
Community Support	0
Facilities Acquisition	0

Source: Wyoming Department of Education

5.3.4.2 Student Enrollment

Student enrollment as of October 1, 2007 was 1,115 for the Platte County School District #1 as shown in Table 5-31. The enrollment in 2007 was down by 379 students from 1998.

Table 5-31 Platte County School District #1 Enrollment

Year	Enrollment Total
1998	1,494
1999	1,436
2000	1,351
2001	1,315
2002	1,256
2003	1,228
2004	1,187
2005	1,155
2006	1,168
2007	1,115

Source: Wyoming Department of Education

5.3.4.3 Student-Teacher Ratios

A commonly used measure of overall school quality is the student-teacher ratio (i.e., the ratio of total student enrollment in a school, school district, or other unit to the number of full-time equivalent [FTE] certified teachers). This ratio provides a means of comparing different educational units such as school districts to a state or national parameter. The approach taken here is to document trends in the student-teacher ratio for each year from 1995 to 2006 in Platte County School District #1. Over the course of the 11 years, the student-teacher ratio has continued to improve (i.e. fewer students per teacher) in the level of service in Platte County School District #1.

Table 5-32 Platte County Historic Student-Teacher Ratios (1995 – 2006)

Year	Student – Teacher Ratio
1995	9.53
1996	9.74
1997	9.63
1998	9.43
1999	9.15
2000	8.57
2001	8.70
2002	8.88
2003	8.75
2004	7.94
2005	7.41
2006	7.76

Source: Wyoming Department of Education

5.3.4.4 Capital Improvement and Expansion Plans

The Capital Improvement Plans (CIPs) for the school districts are designed to address the requirement of anticipated baseline growth and changing demographic conditions in the school districts as well as periodic maintenance and report of existing facilities and infrastructure.

5.3.5 Public Safety

Rule I Section 7(vi)(D) – Pubic facilities and services availability and needs, which may include, but are not limited to: Existing police and fire protection including specific new demands or increases in service levels created by the proposed industrial facility.

This section addresses the availability of fire protection and law enforcement services and crime levels in the counties comprising the study area.

5.3.5.1 Fire Services

The study area has two fire stations operated by 2 fire departments, the majority of which are staffed on a volunteer basis. Table 5-33 lists the fire departments and the selected characteristics of each department.

Table 5-33 Fire Departments and Ambulance Service in the Study Area

	Community	No. Stations	Full-time Paid	Volunteer	EMS Service	Basic EMT's	Advanced EMT's
Platte County	Chugwater/ Wheatland	2	7	47	0	9	9
Chugwater Volunteer Fire/Ambulance Department	Chugwater	1	0	18	0	4	0
Wheatland Fire Department	Wheatland	1	1	29	0	0	0
Eastern Wyoming Ambulance Service	Wheatland	1	6	0	0	5	9

Source: Wheatland Fire Chief, Chugwater Fire Chief, Owner of Eastern Wyoming Ambulance Service

The fire hall for the Chugwater area is located in Chugwater. There are several fire trucks parked in outlying areas to respond quicker to fires outside of the town of Chugwater. The fire hall for the Wheatland area is located in Wheatland. They too are spread throughout the county at various locations for better service to the outlying areas. Both fire departments are strictly volunteer firefighters. The one paid employee for the fire department in Platte County is the mechanic for the Wheatland Fire Department. It is likely that any call for service associated with construction or operational activities at the Project site would be responded to by the Chugwater Fire Department.

5.3.5.2 Police Services

Law enforcement in the study area is provided by counties and municipalities made up of the Platte County Sheriff's Office (serving the entire county) and the Wheatland Police Department (serving within the town limits of Wheatland). In addition, the Wyoming Highway Patrol maintains a number of offices throughout the study area including an office in Wheatland, which employs three state troopers.

Table 5-34 Law Enforcement Agencies in the Study Area

Name	City	County
Wheatland Police Department	Wheatland	Platte
Platte County Sheriff's Department	Wheatland	Platte
Wyoming Highway Patrol, Wheatland Office	Wheatland	Platte

Table 5-35 Law Enforcement Personnel 2009

	Community	Officers	Civilian	Total
Platte County	Chugwater/ Wheatland	40	20	60
Wheatland Police Department	Wheatland	9	1	10
Platte County Sheriff's Office	Wheatland/ Chugwater	28	19	47
Wyoming Highway Patrol, Wheatland Office	Platte County	3	0	3

Sources: Wheatland Police Department, Platte County Sheriff's Office, State Highway Patrol

As of 2009, Platte County had 40 sworn officers and 20 civilians working for the law enforcement agencies in the area.

5.3.5.3 Crime

Reported crimes (i.e., crimes known to law enforcement agencies) are categorized into the more serious Part 1 crimes and less serious Part 2 crimes. Part 1 crimes (also referred to as index crimes) are further subdivided into crimes against persons (murder, forcible rape, robbery, and aggravated assault) and crimes against property (burglary, larceny, and motor vehicle theft). Part 2 crimes are classified into a number of groups described later. Trends in crimes in Platte County are shown in Tables 5-36 through 5-38.

Table 5-36 Crimes in the State of Wyoming 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Index Crimes	16,583	16,285	17,392	17,858	17,962	18,052	17,242	16,584	16,235
Violent Crimes	1,115	1,316	1,272	1,364	1,314	1,163	1,172	1,234	1,251
Property Crimes	15,468	14,969	16,120	16,494	16,648	16,889	16,070	15,350	14,984

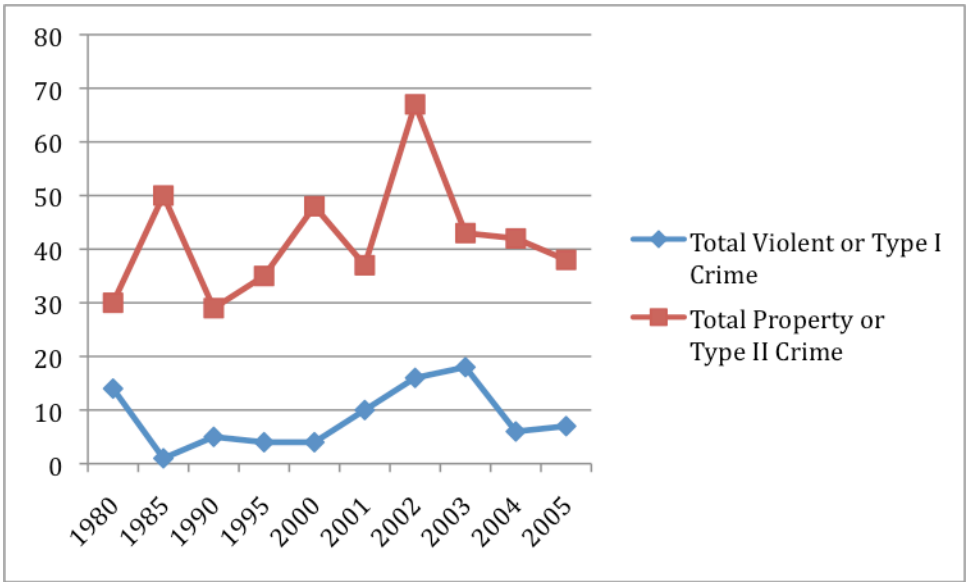
Source: Wyoming Law Enforcement Agency Uniform Crime Reports (1980-2005)

Table 5-37 Crimes in Platte County for Selected Years

	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005
Population	4,833	3,052	3,719	3,884	4,112	4,117	4,153	4,091	4,079	4,067
Burglary	9	11	6	5	6	12	23	7	9	15
Larceny/ Theft	13	39	20	28	36	24	37	30	30	22
Vehicle Theft	8	0	3	2	6	1	7	6	3	1
Total Property Crime/ or Type II Crime	30	50	29	35	48	37	67	43	42	38
Murder/ Manslaughter	3	0	0	0	0	0	0	0	0	0
Rape	1	0	2	0	0	0	0	2	0	0
Robbery	0	0	0	0	0	0	0	1	0	1
Aggravated Assault	10	1	3	4	4	10	16	15	6	6
Total Violent Crime or Type I Crime	14	1	5	4	4	10	16	18	6	7

Source: Wyoming Law Enforcement Agency Uniform Crime Reports

Table 5-38 Number of crimes reported by Platte County by Year and Total 1980-2005



Source: Wyoming Law Enforcement Agency Uniform Crime Reports (1980-2005)

Over the period 1980 to 1990 and 2001 to 2003 Platte County exhibited an increase in crime, both Type I and Type II. From 2003 to 2005 crime rate in Platte County exhibited a decrease in crime.

5.3.6 Health Care

Rule I Section 7(vi)(E) – Public facilities and services availability and needs, which may include, but are to limited to: an analysis of health and hospital care facilities and services.

This section discusses the location and characteristics of health care facilities and services in the two county study area, including the number and type of facilities, staffing levels, LOS measures, availability of emergency medical service, and the health needs of the existing population.

5.3.6.1 Location and Characteristics of Health Care Facilities

There is one major hospital in the study area. This is Platte County Memorial Hospital, located in Wheatland, Wyoming. It is located approximately 27 miles from the proposed project location.

Table 5-39
Selected Characteristics of Platte County Memorial Hospital

Number of Beds	29
Admissions	572
Inpatient Surgeries	71
Outpatient Visits	20,258
Outpatient Surgeries:	280
Emergency Room Visits	3,143
Births	57

Staffing (employed, on payroll) at Platte County Memorial Hospital

Full-time physicians and dentists	2
Part-time physicians and dentists	0
Full-time registered nurses	29
Part-time registered nurses	2
Full-time licensed practical nurses	4
Part-time licensed practical nurses	0

Table 5-40
Health Care Professionals in Platte County, Wyoming (2006)

All Physicians	7
Full-Time Physicians	5
Part-Time Physicians	2
All Physician Assistants	1
All Advanced Practice Nurses	4
All Dentists	2
All Pharmacists	7

Level of Service Ratios (per 10,000 residents) – based on 6 Physicians in 2008
Platte 7.0

Level of Service Ratios (per 10,000 residents) – based on 194 Physicians in 2008
Wyoming 19.4

Source: Wyoming Healthcare Commission

The number of health care professionals in the study area and the state are shown in Table 5-40. The level of service for Platte County is significantly lower than the State of Wyoming.

5.3.6.2 Health Needs of the Existing Population

This section presents material contained in a report prepared for the Wyoming Health Care Commission in 2007 entitled Status and Future of Health Care Delivery in Rural Wyoming. Wyoming is undergoing significant changes in population. Some areas of the state are experiencing extraordinary growth, while others are in decline. Like many predominantly rural states, Wyoming is seeing a dramatic increase in the number of persons aged 65 and over. However, Wyoming is also experiencing substantial growth in the working age population that supports the growth in extraction of natural resources. The two population shifts will put different pressures on the health care system. The increase of working age persons will increase demand for dental services, preventative services, and primary care services associated with young families. The increase in persons aged 65 and older will create more demand for geriatric care and care management of patients with multiple chronic conditions associated with the elderly.

One of Wyoming's advantages in health care delivery is an adequate array of facilities offering inpatient services, hospitals and skilled nursing facilities. Despite the availability of these institutional services and the presence of qualified clinical personnel, our analysis shows that many Wyoming residents who could be getting service in Wyoming are using health services in Colorado and Nebraska.

5.3.7 Municipal Services

Rule I Section 7(vi)(B and C) – Public Facilities and services availability and needs, which may include, but are not limited to:

> *(A) Sewer and water distribution and treatment facilities including the capability of these facilities to meet projected service levels required due to the proposed industrial facility. Use of facilities by the proposed industrial facility should be assessed separately from population related increases in service levels;*
>
> *(B) Solid waste collection and disposal services including the capability of these facilities to meet projected service levels required due to the proposed industrial facility. Use of facilities by the proposed industrial facility should be assessed separately from population related increases in service levels.*

This section describes the location and characteristics of the following five primary municipal services provided to residents of the towns of Wheatland and Chugwater in Platte County:

- Wastewater treatment facilities
- Water distribution and treatment facilities
- Nonhazardous waste collection and disposal
- Electricity service
- Propane/ Natural gas service

5.3.7.1 Wastewater

The primarily affected study area contains two wastewater treatment facilities located in Wheatland and Chugwater.

Table 5-41 Wastewater Treatment Facilities Within Study Area

Town	Facility Name
Wheatland	Wheatland Wastewater Lagoons
Chugwater	Chugwater Wastewater Lagoons

5.3.7.2 Water

In the Town of Chugwater, the wastewater treatment facility is located outside of Chugwater in a lagoon that is designed to service 350 people. In the town of Wheatland, the wastewater treatment facility is located outside of Wheatland in 3 cell lagoon System with 2 more holding ponds available if they need it. The water system is designed to service more than 10,000 people. The following table shows the water system in each town in the study area.

Table 5-42 Community Water Systems in the Study Area

Water System Name	Population Served	Primary Water Source Type	Total Maximum Capacity (gpm)	Max. Storage Total	Average Day Use (gpd)	Peak Day Use (gpd)
Wheatland	3298	Groundwater	2,500	3,000,000	1,200,000	2,300,000
Chugwater	244	Groundwater	405	190,000	30,000	300,000
Glendo	228	Groundwater	331,200	485,000	49,753	150,000
Guernsey	1139	Groundwater	21,000,000	750,000	unknown	19,000,000
Hartville	75	Groundwater	1,350	100,000	22,000	Unknown
LaGrange	332	Groundwater	300	300,000	25,000	37,000
Yoder	169	Groundwater	132,480	125,000	15,000	110,000
Torrington	5777	Groundwater	10,370,000	3,530,000	1,606,732	4,606,000
Lingle	510	Groundwater	1,500,000	158,000	1,275,000	600,000
Ft. Laramie	243	Groundwater	741	50,000	246,000	360,000

Note: gpm is gallons per minute; and gpd is gallons per day.
Source: Wyoming Water Development Commission, 2007, 2009, Town of Wheatland, Town of Chugwater 2009

5.3.7.3. Nonhazardous Waste Disposal

Table 5-43 lists the Type II municipal waste facilities in the study area and their status. Municipal solid waste (MSW) is defined as waste generated in households, commercial establishments, institutions, and businesses. MSW includes used paper, discarded cans and bottles, food scraps, yard trimmings, and other items. Industrial process wastes, agricultural wastes, mining waste, and sewage sludge are not MSW.

Table 5-43 Type II municipal Waste Disposal Facility within the Study Area

Facility Name	Facility Type	Facility Status
Wheatland Landfill	Type II	Active
Torrington Municipal Landfill	Type I	Active
LaGrange Municipal Landfill	Type II	Active
Torrington Disposal Service (TDS) Landfill	Type II	Active

Source: Southeastern Wyoming ISWMP

In the study area, the town of Chugwater uses TDS Trash service out of Torrington, Wyoming. All nonhazardous waste disposal is put into dumpsters, which TDS trash service takes care of. There is no landfill in Chugwater. The nonhazardous waste disposal for the town of Wheatland is served by the Town of Wheatland. The rural areas outside of Wheatland are served by TDS trash service out of Torrington, Wyoming. TDS Trash service takes all its nonhazardous waste to a privately owned landfill in Torrington, Wyoming.

The Town of Wheatland currently owns and operates a permitted Type II solid waste landfill facility located southeast of Town, and it receives loose waste from the Town and surrounding rural areas. The Wheatland landfill encompasses about 37.39 acres of land, and was originally developed and permitted in 1987 Under State of Wyoming SW File Number 10.706. The study area averages 1.45 lbs of solid waste per day.

Table 5-44 Solid Waste Generation by City

Study Area	Population	Tons per Year
Wheatland	3,548	684
Chugwater	244	167
Rural Chugwater	47	74
Glendo	229	307
Guernsey	1,147	965
Ft. Laramie	243	216
Guernsey Nat. Guard	171	268
Hartville	76	83
Yoder	169	119
LaGrange	332	200
Lingle	510	450
Rural Goshen & Platte Co.	8,957	3,196
Torrington	5,777	6,900

Source: Southeastern Wyoming ISWMP

5.3.7.4 Electricity Service and Natural Gas

Electricity for the town of Wheatland is served by the town of Wheatland. The rural areas of Platte County as well as the town of Chugwater receives their electricity from Wheatland Rural Electric Association.

Table 5-45 Electric and Gas Certified area

Electricity

Town of Wheatland	Town of Wheatland
Rural Area of Wheatland	Wheatland REA
Chugwater and surrounding area	Wheatland REA
Glendo	Wheatland REA
Guernsey	Wyrulec Company
Hartville	Wheatland REA
City of Torrington	City of Torrington
Lingle	Wyrulec Company
Yoder	Wyrulec Company
Fort Laramie	Wyrulec Company
LaGrange	Wyrulec Company

Gas

Town of Wheatland	Source Gas
Rural Areas of Wheatland	Propane Tanks
Chugwater and surrounding area	Propane Tanks
Glendo	Source Gas
Hartville	Source Gas
Guernsey	Source Gas
Yoder	Source Gas
Torrington	Source Gas
Rural Area of Goshen County	Propane Tanks
Lingle	Source Gas
Hawk Springs	Propane Tanks
LaGrange	Propane Tanks

Sources: Wyoming Public Service

5.3.7.5 Natural Gas Service

Natural gas service is provided to most of the towns in the study area. All rural areas within the study area have propane tanks, which are serviced by three local fuel companies in the area. The fuel companies in the area are Wheatland Coop Association in Wheatland, WESTCO out of Torrington and WYCO out of Pine Bluffs.

5.3.8 Transportation Facilities

Rule I Section 7(i)(v) – An analysis of transportation facilities containing discussion of roads (surface, type) and railroads (If applicable). An analysis of effects on transportation facilities including effects on service levels of roads, haul routes for materials and supplies, increased rail traffic at grade crossings, and intersection of new access roads with existing roads.

This section identifies major transportation facilities in the study area and their utilization levels.

5.3.8.1 Major Facilities

Table 5-46 shows the major transportation corridors within the study area. I-25 extends north-south through Platte County. It is the major highway through the study area. The secondary highway in the study area is State Hwy 313 which goes east-west from Chugwater. The main road closest to the proposed facility is Pioneer Road which goes north-south. The highest traffic volume is I-25. The highest proportion of trucks (measuring over 50 percent in places) is also recorded on I-80.

Table 5-46 Road Systems within the Study Area

Town	Road	Type	General Direction
Wheatland	I-25	Interstate	North-South
Chugwater	I-25	Interstate	North-South
Chugwater	Hwy 313	U.S. Highway	East-West
Chugwater	County Line Rd	Gravel Road	North South

Table 5-47 Average Annual Daily Traffic (AADT) on I-25 in Study Area

County	Begin Milepost	Location	End Milepost	Location	Cars	Trucks	Composite/ Total
Platte	47.248	County Line	54.59	Chugwater	6,010	1,060	7,070
Platte	54.59	Chugwater	57.649	TY Basin	5,920	1,050	6,970
Platte	57.649	TY Basin	65.253	Slater Road	6,110	1,220	7,330
Platte	65.253	Slater Road	66.2	Hunton	6,210	1,230	7,440
Platte	66.2	Hunton	68.454	Antelope	6,210	1,230	7,440
Platte	68.454	Antelope	70.621	Bordeaux	6,210	1,230	7,440
Platte	70.621	Bordeaux	73.025	Wyoming 34	6,280	1,240	7,520
Platte	73.025	Wyoming 34	78.931	S Wheatland	6,460	1,290	7,750
Platte	78.931	S Wheatland	80.853	N Wheatland	5,960	1,190	7,150
Platte	80.853	N Wheatland	84.744	Laramie River	6,320	1,260	7,580

As shown in Table 5-47, in the study area the average daily number of cars on I-25 is 6,169. The average daily number of trucks is 1,200. The average daily total is 7,369 of which 16.2% is trucks.

Table 5-48 Wyoming Department of Transportation Traffic Recorder Data by Month

Wyoming Department of Transporation
Traffic Recorder Data by Month
For Calendar Year: 2008

Station Number **000160** ***Route*** **I-25** ***Milepost*** **19.600** ***Location*** **CHUGWATER SOUTH**

Month	*Average SUN*	*Average MON*	*Average TUE*	*Average WED*	*Average THUR*	*Average FRI*	*Average SAT*	*Average DAY*	*Average Weekday*	*Avg Mth %*
JAN	4,357	4,720	4,477	4,797	5,004	5,500	4,445	4,748	4,900	73.3%
FEB	4,693	4,836	4,688	4,914	4,918	6,104	4,605	4,968	5,092	76.7%
MAR	5,433	5,509	5,105	5,472	6,011	6,817	5,392	5,697	5,783	88.0%
APR	5,908	5,583	5,451	5,565	5,636	6,951	5,138	5,732	5,837	88.5%
MAY	6,746	7,210	6,216	6,441	6,932	8,083	6,605	6,930	6,976	107.0%
JUN	8,816	7,636	7,049	7,515	8,200	9,403	7,516	8,043	7,961	124.2%
JUL	10,619	8,585	7,596	8,233	9,570	9,438	8,222	8,872	8,684	137.0%
AUG	9,110	7,727	7,706	7,480	8,363	9,641	7,809	8,336	8,183	128.7%
SEP	6,915	7,232	6,364	6,526	7,094	8,211	6,280	6,975	7,085	107.7%
OCT	6,413	6,171	5,895	5,985	6,648	7,781	5,730	6,355	6,496	98.1%
NOV	5,567	5,310	5,709	6,855	5,227	6,353	5,748	5,857	5,891	90.5%
DEC	6,060	5,385	5,138	5,002	4,524	5,793	5,489	5,360	5,168	82.8%
Average Daily Traffic	**6,720**	**6,325**	**5,950**	**6,232**	**6,511**	**7,506**	**6,082**		**6,505**	

Historical Data

Year	AADT	30th	DHV%
1997	**5,253**	810	15.4%
1998	**5,501**	837	15.2%
1999	**5,777**	889	15.4%
2000	**5,861**	889	15.2%
2001	**6,008**	921	15.3%
2002	**6,204**	932	15.0%
2003	**6,190**	895	14.5%
2004	**6,065**	867	14.3%
2005	**6,157**	892	14.5%
2006	**6,262**	886	14.1%
2007	**6,539**	879	13.4%
2008	**6,781**	867	12.8%

Notes: *Avg Mth % = Average DAY / AADT*
AADT = Annual Average Daily Traffic
30th = 30th Highest Hour
DHV% = Design Hourly Volume Percent
Traffic Volumes are Estimated

Source: Wyoming Department of Transportation

5.3.8.2 Adjacent Roadway Facilities

Routes in the vicinity of the Project site are I-25, Wyoming State Hwy 313, and County Line Road. Average daily traffic flows along these routes in 2008 are shown in Table 5-50.

I-25 is a four-lane, divided roadway classified as an Interstate by the Wyoming Department of Transportation (WYDOT). This interstate is maintained to accommodate heavy vehicular loads.

Wyoming State Hwy 313 is a two-lane road classified as a major collector highway.

County Line Road is a well-maintained gravel road that was originally made for transportation of missiles to the various missile silos along that road.

Table 5-49 Average Annual Daily Traffic on Hwy 313 in 2008

Route	Description	Milepost	All Vehicles	Trucks
Hwy 313	Jct I-25 & Route 211 (Chugwater Intersection)	54.59	1790	80
Hwy 313	Chugwater West Corp Limits	54.84	750	60
Hwy 313	Jct Rout 321 (WY 321)	100	260	40
Hwy 313	Chugwater East Corp Limits	100.73	170	20

During Project construction, roads and highways may be impacted by vehicles hauling materials to and from the site. Contractors will comply with existing federal, state and county requirements and restrictions to protect the road network and the traveling public. In addition, load lifts will be observed at all times to prevent damage to existing paved road surfaces. When necessary, traffic control and routing arrangements to transport oversized loads will be coordinated with and approved by WYDOT.

Personnel Access Routes. For Phase I, the peak month for traffic due to workers, which is month twelve, does not correspond to the peak month for traffic due to truck deliveries, which is month nine. Analysis of the trips generated by each determined that the peak traffic (total of personnel traffic and truck deliveries) occurs in month 9; therefore, the analysis is based on the traffic generated during this month in the construction schedule. It is expected that approximately 80 personnel will be working at the site during the peak traffic month. These personnel are expected to live in various locations and use the following access routes:

Wheatland to Chugwater to County Line Rd – I-25 to Hwy 313 to County Line Road

Chugwater to County Line Rd – Hwy 313 to County Line Road

Once construction is complete, the wind energy operations will require up to 64 daily personnel. These people will access the site from the County Line Road. It is assumed that all operations personnel will drive their own vehicles to the project site and not leave during the day. These personnel are expected to live in either Chugwater or Wheatland and use I-25 and Hwy 313 to access the Project site.

Truck Access Routes. It is expected that the needed construction materials will be trucked to the site. Each turbine delivery requires eight trucks. Other truck deliveries will consist of gravel for the private access roads, aggregate and cement for the on-site concrete batch plans, and other supplies. The trucks making deliveries are all expected to use I-25 to Hwy 313 to County Line Road to access the site. Heavy trucks are not expected to access the site during the

operations period. The analysis assumes one truck will make package deliveries during each of the peak hours once construction is complete and will use I-25 to Hwy 313 to County Line Road to access the site.

5.4 Socioeconomic Impact Analysis

The socioeconomic impact analysis evaluates the beneficial and adverse impacts of the Project to social and economic resources in the study area and within the more geographically restrictive area of site influence. Benefits include those derived from increased tax revenue, direct employment and opportunities, and secondary employment benefits. Potentially adverse impacts relate to additional demand for housing and community services.

The analysis of impacts includes the following resources:

- Housing
- Educational facilities
- Public safety and security
- Health resources
- Municipal services
- Ad valorem and sales taxes
- Transportation systems

A summary of potential project-related effects and impacts is presented in Table 5-50. For instances where a range of potential impacts is possible (e.g., because of differing LOS ratios for various service providers), the largest potential impact is reported. The project impact is defined as the percentage that the project effect (e.g., number of jobs generated under the project) increases or decreases an appropriate baseline condition (e.g., total employment in the study area). It is evident from Table 5-50 that most impacts are relatively small.

Table 5-50 Summary of Project-Related Effects and Impacts

DIRECT PROJECT EFFECTS			
	Peak Month	**Annual Average**	**2012 Average**
Construction Phase:			
Onsite Workers	194	127	127
Nonlocal Workers	114	68	68
Local Workers	84	59	60
Operations Phase:	**Average Annual**		
Onsite Workers	Up to 64	(16 operators per 200 turbines)	
Nonlocal Workers	0	0	0
Local Workers			
200 Turbine Project		16	16
800 Turbine Project		64	64
PROJECT-INDUCED IMPACTS			
	Study Area Baseline Condition	**Project Effect**	**Project Impact (% over baseline conditions)**
Employment (Average Annual FTE):			
Construction Phase			
Direct (construction sector)	864	59	6.80%
Total	13,102	142	1.08%
Operations Phase			
Direct	13,102		
200 Turbine Project		16	0.12%
800 Turbine Project		64	0.49%
Total	13,102		
200 Turbine Project		21	0.16%
800 Turbine Project		82	0.63%
Population (Peak Month):	20,366	200	1%
Housing:			
Total Temporary Accommodations:			
Recreational Vehicle Spaces	301	30	10%
Total Rental Units	437	30	7.40%
Motel and Hotel Rooms (Wheatland and Chugwater)	278	60	22%
Public Schools:			
Students	1,023	30	3%
Teachers	111	0	0.00%
Fire Protection:			
Full-time Paid Personnel	8	1	12.50%
Law Officers:			
Officers	40	1	2.50%
Healthcare:			
Physicians (FTE)	7	0	0.00%
Emergency Room Visits	3,143	0	0.00%
Solid Waste Generation (pounds per month):	154,167	5,000	>1%
Taxes:			
Ad Valorem (2008)	$18.13 million		
200 Turbine Project		$4.2 million ($19 million over 5 years)	23.20%
800 Turbine Project		$16.8 million ($75 million over 5 years)	92.70%
Sales and Use tax (2008)	$16.15 million	$0.16 million ($0.45 million during 33 mo. construction phase)	1%
Lodging tax	$61,542	(negligible)	0%

5.4.1 Construction Workforce Estimate

Rule I Section 7(h)(i, ii, and iii) – The estimated number of employees needed to complete the construction and operation of the facility by the applicant, its contractors, and subcontractors to include job classifications by calendar quarter. The estimate should also include:

- *(i) Seasonal fluctuations and the peak employment during both construction and operation;*
- *(ii) Annual payroll; and*
- *(iii) Expected benefits, if any, to be provided including housing allowances, transportation allowances, and per diem allowances.*

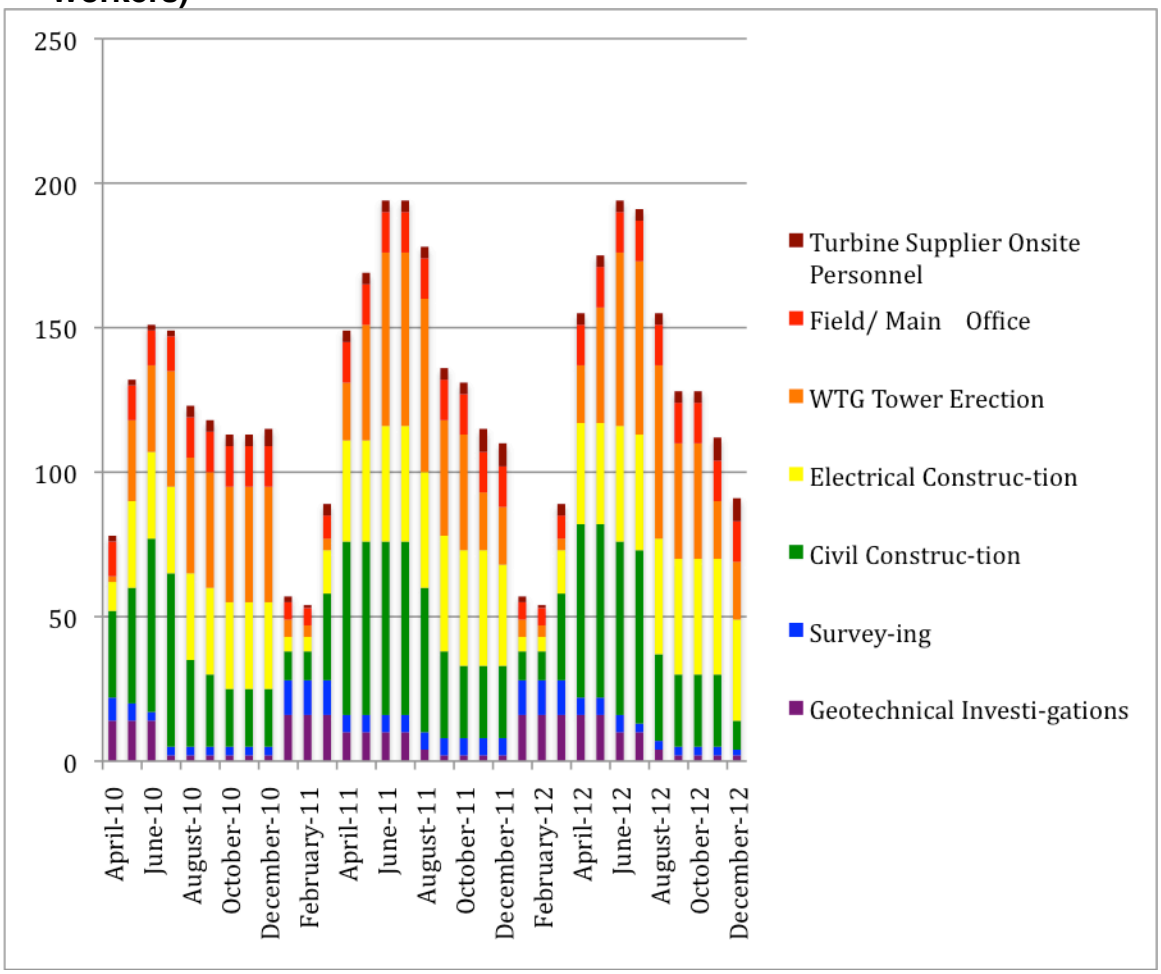
Potential impacts to socioeconomic resources are, in the main, directly and indirectly attributable to (1) the influx of nonlocal workers and (2) expenditures made in the local economy for equipment, materials, and services required to both construct and operate the project and purchases made by nonlocal workers. The estimated number of onsite construction workers by month is shown in Table 5-51 and Figure 5-16. CFEP anticipates that construction will be spread over 33 months beginning with 78 geotechnical, survey, and access road construction personnel arriving in April 2010. The onsite workforce would quickly ramp up to about 150 workers in June and July and then gradually fall throughout the rest of 2010 reaching a low of fewer than 60 during January and February 2011. Employment quickly ramps up again to reach the peak monthly project employment level of 194 workers in June and July 2011. The cyclical pattern is then repeated with a winter lull followed by another activity surge with over 190 on site workers in June and July 2012. Thereafter construction activities will gradually wind down and are expected to end during December 2012.

During the follow-on operations phase of the project, 16 full time workers will be needed to operate up to 200 turbines. When 800 turbines are installed under the three phases of the Project, a total of 64 full time workers will be required to operate them.

Table 5-51 Chugwater Wind Farm Onsite Construction Workforce Schedule

Month and Year	Geotechnical Investigations	Surveying	Civil Construction	Electrical Construction	WTG Tower Erection	Field/ Main Office	Turbine Supplier Onsite Personnel	Month Total
10-Apr	14	8	30	10	2	12	2	78
10-May	14	6	40	30	28	12	2	132
10-Jun	14	3	60	30	30	12	2	151
10-Jul	2	3	60	30	40	12	2	149
10-Aug	2	3	30	30	40	14	4	123
10-Sep	2	3	25	30	40	14	4	118
10-Oct	2	3	20	30	40	14	4	113
10-Nov	2	3	20	30	40	14	4	113
10-Dec	2	3	20	30	40	14	6	115
11-Jan	16	12	10	5	6	6	2	57
11-Feb	16	12	10	5	4	6	1	54
11-Mar	16	12	30	15	4	8	4	89
11-Apr	10	6	60	35	20	14	4	149
11-May	10	6	60	35	40	14	4	169
11-Jun	10	6	60	40	60	14	4	194
11-Jul	10	6	60	40	60	14	4	194
11-Aug	4	6	50	40	60	14	4	178
11-Sep	2	6	30	40	40	14	4	136
11-Oct	2	6	25	40	40	14	4	131
11-Nov	2	6	25	40	20	14	8	115
11-Dec	2	6	25	35	20	14	8	110
12-Jan	16	12	10	5	6	6	2	57
12-Feb	16	12	10	5	4	6	1	54
12-Mar	16	12	30	15	4	8	4	89
12-Apr	16	6	60	35	20	14	4	155
12-May	16	6	60	35	40	14	4	175
12-Jun	10	6	60	40	60	14	4	194
12-Jul	10	3	60	40	60	14	4	191
12-Aug	4	3	30	40	60	14	4	155
12-Sep	2	3	25	40	40	14	4	128
12-Oct	2	3	25	40	40	14	4	128
12-Nov	2	3	25	40	20	14	8	112
12-Dec	2	2	10	35	20	14	8	91
Category Totals	266	196	1155	990	1048	410	132	4,197

Figure 5-17 Construction Phase Workforce (by Month and Number of Workers)



5.4.1.1 Local In-State Contractor Hiring

W.S. 35-12-109 (a)(xviii) - A brief description of the methods and strategies the applicant will use to maximize employment and utilization of the existing local or in-state contractors and labor force during the construction and operation of the facility.

In accordance with W.S. 35-12-109 (a)(xviii), CFEP requires its Balance of Plant General Contractor to maximize employment and utilization of existing local or in-state contractors and labor force during the construction and operation phases of the Project and use as many local workers as possible. To this end the contractor will use local workforce centers to screen job applicants for skilled and unskilled labor.

However it is likely that there is a shortage of skilled craft persons and specialized workers in the general study area. Therefore, it is anticipated that the majority of the skilled craft workers will come from outside the area during the construction phase. The majority of the unskilled craft workers will come from the local area.

5.4.1.2 Local to Nonlocal Workforce Ratio

It is assumed that the proportion of nonlocal workers filling job openings will vary by construction activity as shown in Table 5-52. The proportion of total onsite jobs held by local workers would range between 36 and 77 percent. The maximum share of jobs filled by local workers occurs during January and February in 2011 and 2012. The minimum share of jobs filled by local workers occurs during the peak construction periods (August-October 2010, 2011 and 2012).

Table 5-52 Estimated Proportion of Jobs Filled by Nonlocal Workers

Activity	Percent Nonlocal
Construction Phase	
Geotechnical Investigations	0%
Surveying	0%
Civil Construction	50%
Electrical Construction	50%
WTG Tower Erection	100%
Field Office	0%
Turbine Supplier Onsite Personnel	100%
Operations Phase	
Operators	0%

The majority of the workforce during the construction phase of the project will be nonlocal employees and will require temporary accommodations. The number of local employees is expected to peak at about 84 during spring 2012 as shown in Figure 5-18. The number of nonlocal employees is estimated to peak at 114 workers in the months of June and July in 2011 and again 2012, and would vary over the construction period as illustrated in Figure 5-19.

Figure 5-18 Distribution of Local Workforce

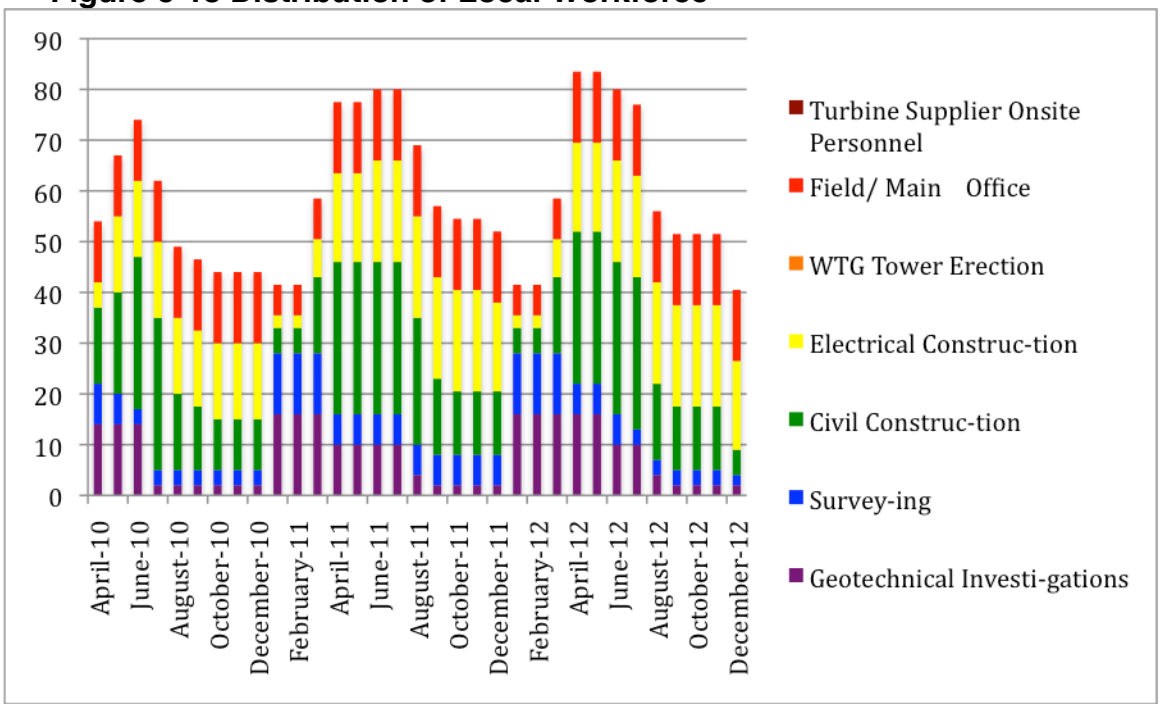
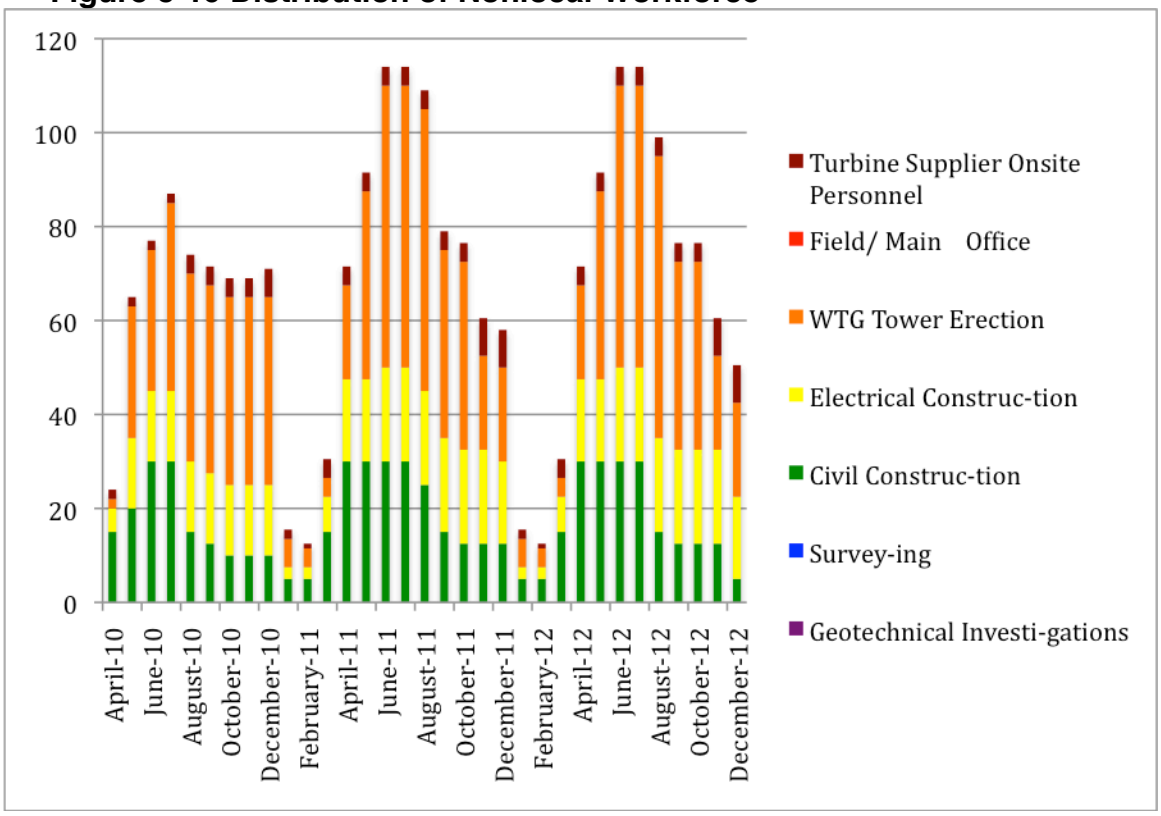


Figure 5-19 Distribution of Nonlocal Workforce



5.4.2 Regional Economic Analysis

The economic impacts associated with the introduction of new business activity that occur in a local economy are based primarily on employee compensation, purchases made by the new business, and taxes paid to local governments. The more local businesses are able to supply the needs of the employees and the new business, the greater will be the local economic impact of the new business. Purchases made outside of the local area represent leakages of money out of the local economy. Profits of the new business also leak out of the local economy if the owners or stockholders reside outside the local area. In order to measure local economic impacts, this report focuses on projected wages and salaries, business purchases, and taxes collected by local municipal and county governments.

Economic multipliers are often used to estimate the total economic impacts of a project or new business activity. The concept is that employee wages and business purchases have a "ripple effect" in an economy. The new activity will purchase some of its required materials, supplies, and services in the local economy, and those local businesses will hire some new employees, creating what are known as indirect effects. Employees at the new business or project will likewise spend a portion of their wages at local stores and businesses, creating what are termed induced effects. In this way, the economic impact of the new business or project spreads in the local economy like a ripple spreads out across a pond. Employee wages and business purchases made outside of the local economy or spent on imports result in leakages from the local economy. Eventually the ripple effect through the local economy will cease due to leakage from the local spending stream. Multipliers are used to estimate the total economic impacts resulting from this ripple effect. The direct impacts (project activity) are multiplied by the economic multiplier to yield an estimate of the overall economic impact of the new activity. Multipliers are often derived from economic input-output (I-O) models that account for linkages between sectors in an economy.

I-O analysis estimates the total dollar value of a change in regional economic activity including all economic linkages among sectors and leakages. The economic system, consisting of producers and consumers, is divided into various sectors that are defined in terms of the resources they require as inputs and what they produce as outputs. These inputs and outputs for a given period, usually expressed in monetary terms, are entered into an I-O matrix and then used to analyze what happens within and across various sectors of an economy in response to various policies or changes in expenditure patterns.

A number of regional economic modeling systems (consisting of data and analytical software) are available. The approach used here for estimating the secondary effects of a project is through an I-O approach. There are a number of

I-O models including Impact analysis for Planning (IMPLAN), Regional Economic Models Inc, (REMI), and Regional Industrial Multiplier Systems II (RIMS II). These modeling systems all contain computer databases used to create economic models for any combination of United States counties. For this Project, IMPLAN was used to create a regional database which was checked against independent data sources, where possible, incorporated into a model of the study area and used to estimate the indirect and induced impacts associated with implementation of the Project.

5.4.2.1 Impact Analysis for Planning Model

IMPLAN was originally developed by the United States Forest Service in cooperation with the Federal Emergency Management Agency (FEMA) and the U.S. Department of the Interior's Bureau of Land Management (BLM) to assist in land and resource management planning. The IMPLAN packages include (1) estimates of final demands and final payments for counties, (2) a national average matrix of technical coefficients, (3) other data that are used to "regionalize" the technical coefficients matrix, (4) mathematical tools that combine the different data sets and generate the I-O model, and (5) tools that allow the user to change data, conduct impact analysis, and generate reports.

5.4.2.2 Regional Economic Model

The region of influence (ROI) used to construct the regional economic model is the study area (i.e. Platte and Goshen counties, Wyoming). First an IMPLAN I-O model was built of the region consisting of these two counties. This data was checked against independent data sources, where possible, and exported into spreadsheet. The validated data was arrayed into a Social Accounting Matrix (SAM) format which consists of an I-O matrix core augmented by household and government income and spending accounts. The SAM model was then used to estimate the regional economic impacts resulting from construction and operation of the proposed project.

5.4.2.3 Project Construction and Operation Impacts

In addition to providing a stimulus to the local economy in the form of expenditures on materials and supplies (referred to as procurements), the proposed Project would directly employ local and non-local construction workers. Construction workers make purchases in the study area, thus stimulating additional output in sectors that provide consumer goods and services. As a result of Project procurements and consumption expenditures by both local and nonlocal construction workers, the proposed Project is expected to result in a temporary increase in employment and income within the study area during the construction period. A number of assumptions were used in modeling the impacts: (1) Local workers hired during the construction phase are all employed

in the construction sector. (2) Hiring a portion of construction workers locally also resulted in proportional local procurement of goods and services used in the construction process. (3) Expenditures made in the local economy by temporarily relocating construction workers included lodging; meals, and incidental expenses; entertainment and recreation; and transportation. (4) For purposes of analysis, per diem amounts for lodging and for meals and incidental expenses are those allowed under federal contracts: $76 and $49, respectively. (5) In addition, it is assumed that nonlocal workers would spend an average of $25 for recreation and entertainment per day. (6) Expenditures by nonlocal workers on gasoline are estimated assuming a 20 mile per day commute, commuter vehicle fuel consumption of 15 miles per gallon (mpg), and a fuel cost of $2.25 per gallon.

5.4.2.4 Direct Benefits

During the peak construction period of the Project, it is anticipated that between 39 and 50 percent of the onsite workforce would be persons already residing in the local area. The peak number of local workers employed during the construction phase is 84 occurring during April and May 2012. The average number of local workers employed per month during the project is 59.

During the subsequent operations phase of the Project, local jobs would number approximately 21 per 200 turbine units operated up to a maximum of 82 if all 800 turbines are installed. These totals include 16 and 64 directly hired operators, respectively.

During the 33-month construction period, it is estimated that total expenditures for local construction workers and construction services will be about $20 million. Construction workers are assumed to be paid according to the median wage for their occupation as shown in Table 5-66. Total expenditures by non-local workers for lodging, meals, entertainment and gasoline during the 33-month construction period are estimated to be about $4.5 million.

5.4.2.5 Secondary Benefits

Construction of the Project would result in secondary economic impacts (indirect and induced impacts) within the study area. During the construction phase the Project is expected to result in additional annual employment within the study area of 83 indirect and induced full time jobs.

5.4.2.6 Wage and Benefits for Construction and Operations

The Research and Planning section of the Wyoming Department of Employment, in cooperation with the Bureau of Labor Statistics (BLS), conducts an Occupation Employment Statistics (OES) Wage Survey. The OES program estimates occupational employment and wages. Data obtained from polled establishments are used to estimate occupational employment and wage rates for Unemployment Insurance (UI) covered wage and salary jobs in nonfarm establishments. Wages for the OES Wage Survey include base pay rates, cost-of-living allowances, guaranteed pay, hazard pay, incentive pay, commissions, piece rates and production bonuses, length-of-service allowances, on-call pay, and portal-to-portal pay. The hourly wage estimates are calculated using a year-round, full time figure of 2,080 hours per year (52 weeks times 40 hours).

5.4.2.7 Employee Wage Estimates

Based on information compiled in the 2008 Wyoming Wage and Benefit Summary (Wyoming Department of Employment, 2009), hourly wages are presented for labor categories that are expected to be present throughout both the construction and operations phases. Table 5-53 provides a breakdown of these hourly wages.

Table 5-53 Average Wages per Occupation Classification Based on 2008 Occupational Employment Statistics Data

	Mean Wage	Mean of Lower 1/3	Mean of the Upper 2/3	25th	Percentile 50th (median)	75th
Construction Occupations						
Crane and Tower Operators	20.05	16.17	21.99	17.03	19.05	21.79
Construction Laborers	12.55	10.02	13.81	10.48	12.03	13.95
1st Line Supervisors/Managers of Construction Trades and Extraction Workers	27.01	17.43	31.81	19.31	24.16	32.61
Industrial Machinery Mechanics	21.45	14.92	24.72	16.74	20.38	26.29
Installation, Maintenance and Repair Occupations						
1st Line Supervisors/Managers of Mechanics, Installers, and Repairers	25.95	16.17	30.84	18.92	25.49	32.67
Mobile Heavy Equipment Mechanics, except engines	21.14	16.18	23.62	17.73	21.6	24.94
Industrial Machinery Mechanics	21.45	14.92	24.72	16.74	20.38	26.29
Maintenance and Repair Workers	17.29	10.19	20.85	12.08	16.61	22.83
Millwrights	22.43	15.8	25.75	17.34	22.74	27.58
Electrical Power-Line Installers and Repairers	23.25	16.13	26.8	18.49	23.82	27.59
Helpers - Installation, Maintenance and Repair Workers	10.13	6.72	11.83	7.33	9.35	12.38

Source: Wyoming Department of Employment, 2008

5.4.2.8 Project Employee Benefits Estimates

Table 5-54 shows a statewide assessment of compensation components for all industries in Wyoming, as well as breakouts for the construction and trade/transportation/utilities sectors. According to the Wyoming Department of Employment benefits analysis, 86.3 percent of total compensation in 2006 was wages and salaries followed by insurance contributions (9.1 percent) and retirement plans (4.6 percent). Benefits paid to employees will vary by contractor/subcontractor and status of full-time versus part-time positions.

Table 5-54 Percentage of Full- and Part-Time Wyoming Employees Offered Selected Benefits by Industry, 2003-2006

	All Industries		Construction		Trade, Transport. and Utilities	
Benefits Category	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Child Care	6	1.6	5.7	0.2	4.8	0
Dental Plan	69.7	11.2	46.2	5	67.8	5.5
Dependent Health Insurance	74.9	11	55.8	2.7	74.9	5.5
Short-Term Disability	31	4	16.8	3.4	27.2	2.1
Educational/Tuition Assistance	47.6	20.7	22.4	10.5	34.5	10.3
Flexible Spending Account	47.5	18.8	17.6	1.7	43.6	11.1
Health Insurance	79.2	12.1	60.3	6.1	80.7	7.2
Hiring Bonus	22.5	7.7	5	0.7	33.8	8.4
Life Insurance	69.7	8.9	45.3	4.2	67.1	7.4
Long-Term Disability	44.1	6	13.2	1.8	34.8	0.7
Paid Holidays	77.7	26.4	52.1	10	82.2	24.4
Paid Personal Leave	38.3	13.5	28.5	1.2	36	7.7
Paid Sick Leave	47	17.5	18.8	0	38.8	4.1
Paid Vacation	76	21.8	60.9	4.8	74.3	12.5
Retirement Plan	77.8	30.8	56.9	6.4	76.4	19.2
Operate in Shifts	44.5	40.7	6.1	2.3	38.8	33
Shift Differentials	49.2	26.3	78.1	33.4	57.5	41.1
Vision Plan	44.3	6.8	22.8	1.4	43.7	4.5

Source: Wyoming Department of Labor 2008

5.4.4 Public Safety

5.4.4.1 Law Enforcement

LOS ratios for major law enforcement agencies within the study area range from 1.9 to 4.4 officers per 1,000 residents. The national value is 2.3. Should the level of service in the study area currently provided to the residents remain unchanged, the addition of over 100 workers (even temporarily) could create a need for an additional law enforcement officer especially during the peak construction activity periods (July-August 2011 and 2012). This would be an increase of about 1 percent over current staffing levels.

Assuming index crime rates ranging between 108 and 111 per 10,000 residents in Platte County, the addition of over 100 construction workers could account for an increase of about 1 to 2 index crimes annually.

The proposed Project site would be accessed from Hwy 313, a two-lane, paved highway originating in Chugwater and ending at the county line. It is anticipated that the Platte County Sheriff's Department would respond to calls for law enforcement services. In this manner, potential impacts that could impair the health, safety, or welfare of Project personnel or residents of the area primarily affected by the Project would be avoided.

5.4.4.2 Fire Protection

The influx of over 100 temporary residents associated with peak construction activity of the Project would have a negligible effect on the existing LOS provided by fire protection agencies. The LOS ratios for full-time paid firefighters and volunteer firefighters in the Wheatland and Chugwater area are between 11 and 12 firefighters (volunteer and full-time) per 1,000 residents. Should the LOS in the study area currently provided to the residents remain unchanged, the addition of about 114 nonlocal construction workers (even temporarily) could increase the need for one to two firefighters over the duration of construction activity. As is the case with law enforcement, access to the Project site would be via Hwy 313 and county line. The closest provider would be the Chugwater Volunteer Fire Department, which has approximately 18 volunteer firefighters and provides emergency medical services. CFEP will proactively coordinate with fire departments likely to provide service, if needed, to minimize fire safety hazards, coordinate response efforts, and effectively train CFEP and subcontracting personnel in fire safety issues.

5.4.5 Municipal Services

It is expected that nonlocal construction workers would reside in existing hotel/motels, at established RV parks, and in single-family rental houses, mobile homes, and apartments in the area of site influence. Accommodating about 114 peak-month temporary residents would not increase the need for additional accommodation units in the area of site influence. The additional temporary population could increase the demand for municipal services such as water, wastewater, and solid waste. However, such a modest increase for a relatively short duration would have negligible effects on the provision of these services.

5.4.5.1 Solid Waste

The EPA publishes information on the generation and disposal of waste in the nation. Total municipal solid waste generation in 2006 was 251 million tons (EPA, 2007). However, 82 million tons of the materials were recycled (i.e., 32.5 percent). Organic materials were the largest component of the municipal solid waste stream: specifically, paper and paperboard products accounted for 34 percent, with yard trimmings and food scraps accounting for 12.9 and 12.4 percent, respectively (EPA, 2007). Plastics comprised 12 percent; metals made

up 8 percent; and rubber, leather, and textiles accounted for 7 percent. Wood waste accounted for 6 percent, glass 5 percent, and other miscellaneous wastes made up approximately 3 percent. Based on this information, an average of 4.6 pounds of municipal waste were generated per person per day, and 1.5 pounds of individual waste generation were recycled nation-wide in 2006 (EPA. 2007). In the case of Platte County, daily municipal solid waste generation is 1.45 pounds per person.

Municipal Solid Waste Materials. Based on the 1.45 pounds per person per day of waste generation, at the peak nonlocal worker employment of about 114 onsite workers, the average daily waste volume would be approximately 165 pounds per day during the peak construction month for a total of 4,300 lbs over a 26 day working month.

Construction Waste Materials. During construction activities, solid waste materials (e.g., excess construction materials) would be generated. Construction wastes primarily would consist of packaging material associated with each WTG. Other potential wastes may include erosion control materials, such as straw bales, silt fencing, and scrap steel. When feasible, these construction wastes will be recycled. Steel scrap will be separated and recycled to the extent feasible. Wood from concrete forms will be reused when possible and then recycled. Estimates of the types and quantities of waste materials generated during the construction period are presented in Table 5-55.

Table 5-55 Description of Estimated Construction Waste Materials for Each Wind Turbine Generator

Component	Description	Dimensions	Estimated Volume	Uncompacted Loose Refuse Conversion* (300 - 600 pounds/cubic yard**) in pounds
Down Town Assembly (DTA) Components	Electrical Simplification System (ESS) cabinet will be in a wooden plywood crate with pallet bottom.	8' x 3.5" x 8.3"	8.6 cubic yards (if not compacted)	3,870
	ESS cabinet will be wrapped in a Vapor Corrosion Inhibitor (VCI) bag.	8' x 4' x 8.2' - .004" thick	9.7 cubic yards (if not compacted)	4,365
	ESS cabinet exhaust fan in a wooden plywood crate with pallet bottom	2.8" x 2.7" x 1.4'	0.40 cubic yards (if not compacted)	180
	ESS platform may be in a wooden plywood crate with pallet bottom	8' x 8' x 2.5'	5.9 cubic yard (if not compacted)	2,655
Towers Section (Base, Mid, Top)	Each tower section will have tarps on each end. The tarps are handled as "shipping fixtures" and are returned to suppliers.	N/A	No solid waste. Shipping fixtures are returned to suppliers.	N/A
Machine Head	Shipping fixture to be returned to factory	N/A	No solid Waste	N/A
Hub	Hubs are shipped with shrink wrap	N/A	0.5 cubic yard when removed.	225
Blades	Shipping fixtures to be returned to factory.	N/A	No solid waste	N/A
Parts Shipped Loose	Parts ship loose includes bus bar kits, bolts, etc. In addition, there will be smaller cardboard boxes, plastic wrap and miscellaneous packaging materials on smaller items.	Bolts are in wooden crates 3' x 3' x 2'	0.75 cubic yard (if not compacted).	338

Note: Assume average of 450 pounds for calculation conversion ([300 + 600] / 2 = 450)
Source: EPA (2008)

Portable toilets will be provided for onsite sewage handling during construction and will e pumped and cleaned regularly by the construction contractor. No other wastewater will be generated during construction. Lastly, any quantities of solid waste materials generated by activities at the Project site will be disposed of in an appropriate manner at suitable disposal sites.

5.4.5.2 Hazardous Wastes

Any hazardous materials will be used in a manner that is protective of human health and the environment, will comply with all applicable local, state, and federal laws and regulations, and will be disposed of at appropriate, licensed facilities. Accidental releases of hazardous materials (e.g., vehicle fuel during construction) will be prevented or minimized through proper containment of these substances during use and transportation to the site. Any oily waste, rags, or dirty or hazardous solid waste will be collected in sealable drums and removed for recycling or disposal by a licensed contractor.

In the unlikely event of an accidental hazardous materials release, any spill or release will be cleaned up and the contaminated soil or other materials disposed of and treated according to applicable regulations. Spill kits, containing items

such as absorbent pads, will be located on equipment and in temporary storage facilities onsite to respond to accidental spills, if any were to occur. Employees handling hazardous materials will be instructed in the proper handling and storage of these materials as well as where spill kits are located. The balance of plant general contractor will be responsible for obtaining approval of a spill-prevention and counter-measures control plan.

5.4.6 Transportation

Adding the site-generated traffic to the background traffic yields the volumes for the analysis of the construction period during the Project. The following discusses the assumptions used in the calculation of the additional highway traffic due to the construction period of the Project.

Current Existing Peak Hour Operation Conditions

Table 5-56 below was obtained from the Casper office of the Wyoming Department of Transportation.

Table 5-56 Existing Peak Hour Operating Conditions 2007

Facility Highway	Average Daily Volume	Peak Hour Volume	Percent Trucks
I-25 from County Line to Chugwater Interchange Northbound Lane	3080	308	18
I-25 from County Line Interchange Southbound Lane	2980	298	20
I-25 from Chugwater Interchange to Ty Basin Interchange Northbound Lane	2850	285	19
I-25 from Chugwater Interchange to Ty Basin Interchange Southbound Lane	2890	289	20
WYO 313 from the I-25 Interchange to the Chugwater Corporate Limits Includes Both Directions	1870	187	4
WYO 313 from Chugwater Corporate Limits to Jct. with WYO 321 Includes Both Directions	790	79	8
WYO 313 from the Jct. WYO 321 to the Chugwater Corporate Limits Includes Both Directions	270	27	15
WYO 313 from the Chugwater Corporate Limits to the Platte/Goshen County Line to Jct. with US 85 Includes Both Directions	180	18	11
WYO 313 from the Platte/Goshen County Line Includes Both Directions	200	20	15

Source: WYDOT Casper Office

Construction Personnel

Construction of the Project is expected to employ up to approximately 194 total construction workers during the peak four months of construction activity (June and July in 2011 and 2012). The trip generation and distribution process used the following assumptions to calculate the additional highway and turn movement volumes generated by these workers:

- Construction will occur in one shift during the day.
- The workweek is 6 days per 7 day work week.
- The workers all arrive in the morning peak hour and depart in the evening peak hour.
- Personnel will not leave the site during the shift.
- The average vehicle occupancy is 1.3 people per vehicle (ITE Trip Generation Manual).

The expected number of trips during the peak hour is based on the month in which the most activities overlap and not an aggregate total because not all types of deliveries will occur in the same month. Deliveries are assumed to occur during peak hours as well as hours throughout the day in between the peak hours. To represent an approximate worst-case scenario for analysis purposes, if one type of delivery only occurs a few times per day, it is assumed to occur during the peak hours. Thus, July 2010 generates 306 daily truck trips. Table 5-57 shows the increases during peak hour traffic expected for the Chugwater Area.

Table 5-57 Expected Peak Hour Operating Conditions During Construction

Facility Highway	Average Daily Volume	Peak Hour Volume	Percent Trucks
I-25 from County Line to Chugwater Interchange Northbound Lane	3100	310	18
I-25 from County Line Interchange Southbound Lane	3020	302	20
I-25 from Chugwater Interchange to Ty Basin Interchange Northbound Lane	2850	285	19
I-25 from Chugwater Interchange to Ty Basin Interchange Southbound Lane	2890	289	20
WYO 313 from the I-25 Interchange to the Chugwater Corporate Limits Includes Both Directions	1870	187	4
WYO 313 from Chugwater Corporate Limits to Jct. with WYO 321 Includes Both Directions	790	79	8
WYO 313 from the Jct. WYO 321 to the Chugwater Corporate Limits Includes Both Directions	270	27	15
WYO 313 from the Chugwater Corporate Limits to the Platte/Goshen County Line to Jct. with US 85 Includes Both Directions	180	18	11
WYO 313 from the Platte/Goshen County Line Includes Both Directions	200	20	15

Projected Operational Traffic

The facility operates at a very desirable level of service during the peak hour. On the highway, the average travel speed is normal and the percent time spent following another vehicle is correspondingly low. The WYO 313 volume and operation is similar to the existing conditions and construction background conditions because the background volume growth is minimal over the 33-month construction period.

Total Analysis – Adding the site-generated traffic to the background traffic yields the volumes for the analysis of the operations period for the Project. The trip generation and distribution process used the following assumptions to calculate the additional highway traffic due to the operation of the phases of the Project:

- Work force will operate in one nine-hour shift.
- All personnel will travel in their own vehicles to the project site.
- Personnel will not leave the site during the shift.
- One truck delivery, or two truck trips, will occur in each peak hour.
- All truck trips are distributed to the east of Chugwater.

The analysis assumes one truck will make package deliveries during each of the peak hours once construction is complete. Thus, deliveries to the site will generate 3 truck trips in each peak hour or 6 daily truck trips once operations commence. Ten personnel will work at the site. These assumptions result in the estimation of 10 additional cars and one truck traveling to the project site on Hwy 313 and County Line Road in each peak hour.

Table 5-58 shows the 2011 total highway and intersection volumes expected for both morning and evening peak hours. All the facilities operate at desirable levels of service during the peak hours. The State of Wyoming Department of Transportation did not have traffic counts for County Line Road or turning movement counts for the Chugwater Area.

Table 5-58 Expected Peak Hour Operating Conditions During Operations

Facility Highway	Average Daily Volume	Peak Hour Volume	Percent Trucks
I-25 from County Line to Chugwater Interchange Northbound Lane	3085	308.5	18
I-25 from County Line Interchange Southbound Lane	2985	298.5	20
I-25 from Chugwater Interchange to Ty Basin Interchange Northbound Lane	2855	285.5	19
I-25 from Chugwater Interchange to Ty Basin Interchange Southbound Lane	2895	289.5	20
WYO 313 from the I-25 Interchange to the Chugwater Corporate Limits Includes Both Directions	1880	188	4
WYO 313 from Chugwater Corporate Limits to Jct. with WYO 321 Includes Both Directions	805	80.5	8
WYO 313 from the Jct. WYO 321 to the Chugwater Corporate Limits Includes Both Directions	272	27.2	15
WYO 313 from the Chugwater Corporate Limits to the Platte/Goshen County Line to Jct. with US 85 Includes Both Directions	184	18.4	11
WYO 313 from the Platte/Goshen County Line Includes Both Directions	205	20.5	15

Conclusion

The additional vehicle and truck trips generated by the construction of the project will have a minimal impact on the operations of the adjacent roadway network. The facilities all operate at acceptable levels of service even with the increased traffic. Thus, no roadway capacity improvements are recommended for I-25, WYO 313 or County Line Road.

5.4.7 Taxes

Rule I Section (7) (vii) – A fiscal analysis over the projection period for all local governments and special districts identified by the applicant as primarily affected by the proposed industrial facility, including revenue structure, expenditure levels, mill levies, services provided through public financing, and the problems in providing public services.

The benefits related to the Project from a tax perspective would occur based primarily on the ad valorem taxes that would be collected over the life of the Project. In addition, in conjunction with associated ancillary activities, as discussed below, state and local tax revenues would be generated especially during construction of the proposed facility. Although some of these tax revenues will be distributed on a local level, the state controls such distribution.

5.4.7.1 Ad Valorem Taxes

Rule I Section (7) (vii) (B) – An estimate of the cost of components of the industrial facility, which will be included in the assessed value of the industrial facility for purposes of ad valorem taxes for both the construction and operations periods. This estimate should include a breakdown by county if the components of the industrial facility will be located in more than one country.

Ad valorem taxes support a variety of county and municipal operations including airports, fire protection, hospitals, libraries, museums, public health, recreational systems, special districts, and education. Assessed property values are the basis for ad valorem taxes. Property values related to the Project are determined annually on a centralized basis by the State Department of Revenue (the Department).

It is the Department's role to estimate the fair market value (FMV) of the improved facility, which includes the value of the land and improvements. It is the owner's responsibility to provide the Department with all necessary information enabling them to make this determination. Developments are taxable prior to their completion and operation, especially in the case of multiyear construction schedules. Under such circumstances, the owner provides the Department with cumulative construction costs that are then incorporated into their appraisal.

After the Department determines the FMV of the industrial development, the assessed value is stated as 11.5 percent of this value. The assessed value is then allocated to the county within which the Project is located which then applies the property tax levy (for the tax district within which the Project is located) to calculate the annual property taxes due.

The proposed site is located in Platte County where the 2009 tax levy is an average of 73 mills. Thus for every 1,000 of assessed value of real property (land and improvements) Platte County will levy property taxes of approximately $73 annually. The distribution of property tax revenues collected by the county are distributed across a number of taxing entities as shown in Table 5-22 with the majority supporting public education.

Project Ad Valorem Tax Estimate

The fair market value per turbine is estimated to be $2.5 million. Assessed value is 11.5% of this amount or $287,500 per turbine. Assuming a 20 year straight line depreciation schedule, and the average local millage rate of $73/$1000 assessed value, it is estimated by CFEP that ad valorem property taxes of approximately $21,000 per turbine would be assessed by Platte County during the first full operational year of the Project (2013). For a 200 turbine windfarm the first year total property tax assessment would be $4.2 million with a total of

about $19 million assessed over the first five years of operation. For an 800 turbine wind farm the first year total property tax assessment would be $16.8 million with a total property tax assessment of about $75 million over the first five years of operation.

5.4.7.2 Sales, Use, and Lodging Taxes

Rule I Section 7 (vii) (A) – An estimate of the cost of the industrial facility subject to sales and use taxes and expected payments by quarter for the construction period. This estimate should include a breakdown by county if the components of the industrial facility will be located in more than one county.

The State of Wyoming levies a state sales tax of 4 percent on a wide array of goods and services purchased within the state. The use tax is a companion to the sales tax and is imposed upon goods purchased tax-free outside Wyoming for use in Wyoming. Collected taxes are shared between the state (69 percent) and county (31 percent). Counties can levy additional sales and use taxes: General purpose option tax of 1 percent, specific purpose option tax of 1 percent, and lodging tax of up to 4 percent on hotel and motel room charges.

Subparagraph 39-15-105-(viii) – (N) of the State of Wyoming statues addresses activities that are exempt from state and local sales and use taxes. The section addresses the sale of equipment used to generate electricity from renewable resources. Renewable resources are defined to include wind generation, solar, biomass, landfill gas, hydro, hydrogen, and geothermal energy. The exemption provided by this subparagraph is limited to the acquisition of equipment used in a project to make it operational up to the point of interconnection with an existing transmission grid including WTGs, generating equipment, control and monitoring systems, power lines, substation equipment, lighting, fencing, pipes, and other equipment for locating power lines and poles. The exemption shall not apply to tools and other equipment used in construction of a new facility, contracted services required for construction, and routine maintenance activities and equipment used or acquired after the project is operational. Based on the above, Project-related expenditures prior to commercial operation are not expected to result in sales and use taxes.

Local tax revenues would, however, accrue from the local purchase of goods and services by nonlocal workers. These would mostly consist of expenditures for meals, recreation and entertainment, gasoline and automotive service, and lodging totaling approximately $3.25 million per year or about $9 million over the 33-month construction period. Assuming a 5% sales and use tax rate, it is possible that sales and use tax revenues of approximately $163,000 per year or a total of about $448,000 could be collected in Platte and Goshen Counties over the 33-month construction period from expenditures by nonlocal workers. Since only one town in the study area (Guernsey) imposes a lodging tax, it is assumed that lodging tax collections from lodging expenditures by nonlocal workers would

be negligible. These estimates are based on the assumption that expenditures by nonlocal workers are distributed in Platte and Goshen Counties.

5.5 Cumulative Impacts

Rule I Section 7 (vi) (I) – Problems due to the transition from temporary construction employees to operating workforces should be addressed. Changes in levels of services required as a result of the proposed industrial facility should specifically be addressed. Cumulative impacts of the proposed industrial facility and other developments in the area of site influence should be addressed separately. This assessment should examine increased demands associated with the construction and operational phases of the proposed industrial facility, as well as effects on the level of services as the construction or operational workforces decline.

Cumulative environmental impacts, as defined in the Industrial Development Information and Siting Act Rules and Regulations, are the combined impacts upon the environment to the social or economic conditions resulting from construction and operation of the proposed industrial facility and from construction and operation of other ongoing or proposed developments in the area of site influence. Proposed developments to be included in cumulative impacts include those developments for which there is active planning and public information available or active permitting.

In addition to the Project, there are currently no other project that are under the jurisdiction of the ISA that have either been issued or will likely receive a construction permit in Platte County.

5.6 Trade-Off Analysis

The proposed Project is expected to create significant and ongoing tax benefits and a modest temporary increase in employment throughout the study area and area of site influence. It is anticipated that Project-related impacts, especially on community services, would be minor and distributed throughout the area of site influence with the majority occurring in the towns of Wheatland and Chugwater.

Implementation of the Project would create both primary and secondary employment opportunities, contribute modest growth to the local economy including the service sectors, and provide a substantial source of revenues for local governments through the collection of significant ad valorem taxes.

The major long-term impact of the Project would be the additional revenue collected by the state and distributed to Platte County through increased ad valorem taxes. The increased ad valorem tax revenues would be distributed by the state and counties for schools, roads, and other community infrastructure.

Further expansion of energy-related resources in the region will continue to add jobs to the growing economies and generate additional tax revenues.

The construction or operation of the project will cause negligible changes in level of service by local governments.

6.0 Evaluation of Environmental Impacts

Rule I Section 7(j) – Evaluation of Environmental Impacts. The items shall be noted and evaluated, as they would exist if the proposed facility were built. Each evaluation should be followed by a brief explanation of each impact and the permit issued that regulates the impact. If the impact is not regulated by a state regulatory agency or federal land management agency, the application must including (sic) plans and proposals for alleviating adverse impacts. Cumulative impacts of the proposed industrial facility and other projects in the area of site influence should be addressed separately.

Potential environmental impacts associated with the construction, operation, and maintenance of the Project are presented in this section. Resource data were collected from existing sources and field studies performed for the Project. Impact analyses were conducted to evaluate the effects of the Project on the natural environment. Methods of mitigating and avoiding impacts will be implemented as part of the Project and are incorporated into the impact analyses and site-specific monitoring plans. Unless otherwise stated, the area of analysis for the evaluated environmental resources consists of the area within the Project boundary as detailed in **Appendix A.** Resource maps for each resource are included in **Appendix E**.

6.1 Physical, Chemical, Biological, and Radiological Discharges

Rule I Section 7(ix) – Inventory of estimated discharges including physical, chemical, biological and radiological characteristics.

There are no anticipated chemical, physical, biological, or radiological discharges associated with construction or operation of the Project that would substantially impair the health, safety, or welfare of the present or expected inhabitants in the area of site influence or the Project area. Resource maps for the areas of environmental analysis described below are included in **Appendix E**.

6.2 Air Quality

Rule I Section 7(x) – Inventory of estimated emissions and proposed methods of control.

Rule I Section 7(xii) – The procedures proposed to avoid constituting a public nuisance, endangering the public health and safety, human or animal life, property, wildlife or plant life, or recreational facilities which may be adversely affected by the estimated emissions or discharges.

6.2.1 Regulatory Jurisdiction

The WDEQ —Air Quality Division (AQD) implements adopted air quality standards and regulations. Air emissions associated with construction and operation of the Project will be subject to the WDEQ-AQD Standards and Regulations. Specifically, Chapter 6 of the Standards and Regulations establishes permitting requirements for all sources being constructed and/or operating in the State of Wyoming.

6.2.2 Emission Sources

6.2.2.1 Construction Emissions

Particulate matter, consisting primarily of cement dust but including some aggregate and sand dust emissions, is the primary pollutant of concern. In addition, there are emissions of metals that are associated with this particulate matter. Most emission points are fugitive in nature. The main point source is the transfer of cement and pozzolan material to silos, and these are vented to a fabric filter.

Fugitive sources include the transfer of sand and aggregate, truck loading, mixer loading, vehicle traffic, and wind erosion from sand and aggregate storage piles. The amount of fugitive emissions generated during the transfer of sand and aggregate depends primarily on the surface moisture content of these materials. The extent of fugitive emission control would vary from plant to plant. A permit will be obtained from the WDEQ-AQD, and operation of the batch plant will be in accordance with the permit. Fugitive dust from road use in the Project area will contribute to particulate matter levels.

Each turbine tower will be supported by a reinforced and poured concrete foundation. The foundation could be either a spread-foot or caisson-type concrete foundation. One batch plant will be operated to mix concrete for the turbine foundations. The wind turbine tower foundations will require approximately 350 to 400 yd3 of concrete per tower for the GE 1.5-MW WTGs. Phase I will have 116 concrete foundations for a total of approximately 51,000 yd3, including the concrete needed for project substation foundations, transformer pads, and other equipment. Phase II will have 370 concrete foundations for a total of approximately 163,000 yd3, including the concrete needed for project substation foundations, transformer pads, and other equipment. With the potential to add an additional 314 concrete foundations for a total of approximately 138,000 yd3, including the concrete needed for project substation foundations, transformer pads, and other equipment.

Raw materials such as aggregate, sand, cement, and water will be delivered to the batch plant by truck for on-site concrete production. If possible, they will be obtained on the property of participating or nearby landowners to minimize

hauling distances and the amount of off-site traffic in the area of site influence. These raw materials are typically staged in temporary silos on site and proportionately combined based on the required concrete mix design for each foundation or pad. The concrete is placed in the delivery trucks and continuously mixed on the way to the turbine site, where the concrete is poured into the foundation forms.

6.2.2.2 Operation Emissions

The sources of pollutants during operation of the Project would be limited to the vehicles and equipment used by maintenance staff. The emissions from these sources would be minor in comparison with the levels of activity that would be required to exceed emissions thresholds; thus, these emissions are not quantified.

No air emissions will be generated from operation of either the WTGs or the substation.

6.2.3 Construction Impacts

Use of the portable batch plants on private fee lands for making concrete would be a permitted source (i.e., the plants would have an operating permit, with emissions limitations, issued by the State of Wyoming). Therefore, a WDEQ-AQD permit will be required prior to operation of the concrete batch plants pursuant to Chapter 6, Section 2, of the regulations and standards. The batch plant operator will obtain the required air permit.

Particulate emission factors for concrete batching are detailed in Table 6-1 and are expressed in pounds of pollutant per cubic yard of concrete.

Table 6-1 Estimated Plant-wide Emissions per Yard of Truck-Mix Concrete

Component	Total PM (lb/yd3)	Fine PM (lb/yd3)
Aggregate delivery to ground storage	0.0064	0.0031
Sand delivery to ground storage	0.0015	0.0007
Aggregate transfer to conveyor	0.0064	0.0031
Sand transfer to conveyor	0.0015	0.0007
Aggregate transfer to elevated storage	0.0064	0.0031
Sand transfer to elevated storage	0.0015	0.0007
Cement delivery to silo	0.0002	0.0001
Cement supplement (fly ash) delivery to silo	0.0003	0.0002
Weigh hopper loading	0.0079	0.0038
Mixer truck loading	0.0346	0.0096
Total dust emissions estimate per yard of concrete	0.0716	0.0275

Source: EPA (2008)

Guided by Table 6-1, total emissions for 400 yd3 of concrete, which constitutes the greatest potential amount of concrete for one tower foundation, are estimated to include 28.6 pounds of total dust and 11 pounds of fine dust.

The concrete batch plant will include appropriate filtration in accordance with the air quality permit. A fugitive dust control plan, including measures such as applying water or dust suppressants to exposed soil or material piles, will be implemented at the Project site to control and prevent the creation of dust associated with construction activities.

Water trucks will be used as appropriate during construction activities to wet the surface of access roads and other potential work area sources of fugitive particulate matter. The selected BOP contractor or subcontractor and holder of the issued air quality permit will be responsible for ensuring that the plant is operated in accordance with the issued permit conditions.

The resulting construction emissions will not significantly impair the environment or the social and economic condition of present or expected inhabitants in the area of site influence.

6.2.4 Operation Impacts

The operation of the WTGs will have negligible effect on air quality (e.g., visible plumes, fogging, misting, icing, impairment of visibility, or changes in ambient levels caused by emitted pollutants). Potential fugitive dust from operations staff vehicles traveling within the Project area would be minimal, and no substantial impairment to the health, safety, or welfare of the present or expected inhabitants in the area of site influence or the Project area is anticipated.

6.3 Noise

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Existing sources of noise in the immediate vicinity of the Project include daily freight trains, traffic from WYO 25, ranching activities, and overhead aircraft.

6.3.1 Regulatory Jurisdiction

ISD regulations state that noise is a resource issue that must be taken into account in the application process. However, numeric limits have not been specified at the state or county level in the Project area.

6.3.2 Fundamentals of Acoustics

It is useful to understand how noise is defined and measured. There are several ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. Table 6-2 summarizes the technical noise terms used in this report.

Table 6-2 Definitions of Acoustical Terms

Term	Definitions
Ambient noise level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the measured pressure to the reference pressure, which is 20 micropascals.
A-weighted sound pressure level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent sound Level (L_{eq})	The Leq integrates fluctuating sound levels over a period of time to express them as a steady state sound level. As an example, if two sounds are measured and one sound has twice the energy but lasts half as long, the two sounds would be characterized as having the same equivalent sound level. Equivalent sound level is considered to be related directly to the effects of sound on people since it expresses the equivalent magnitude of the sound as a function of frequency of occurrence and time.
Day–night level (L_{dn} or DNL)	The day-night level is a 24-hour average L_{eq} where 10 dBA is added to nighttime levels between 10 PM and 7 AM. For a continuous source that emits the same noise level over a 24-hour period, the L_{dn} will be 6.4 dB greater than the L_{eq}.
Statistical noise level (L_n)	The noise level exceeded during n percent of the measurement period, where n is a number between 0 and 100 (for example, L_{50} is the level exceeded 50 percent of the time).

Table 6-3 shows the relative A-weighted noise levels of common sounds measured in the environment and in industry for various sound levels.

Table 6-3 Typical Sound Levels Measured in the Environment and Industry

Noise Source at a Given Distance	A-Weighted Sound Level in Decibels	Qualitative Description
Carrier Deck Jet Operation	140	
	130	Pain Threshold
Jet takeoff (200 ft)	120	
Auto Horn (3 ft)	110	Maximum Vocal Effort
Jet takeoff (2,000 ft) Shout (0.5 ft)	100	
New York Subway Station Heavy Truck (50 ft)	90	Very Annoying: Hearing Damage (8-hour continuous exposure)
Pneumatic drill (50 ft)	80	Annoying
Freight Train (50 ft) Freeway Traffic (50 ft)	70	Intrusive; Telephone Use Difficult
Air Conditioning Unit (20 ft)	60	
Light auto traffic (50 ft)	50	Quiet
Living Room or Bedroom	40	
Library Soft whisper (15 ft)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

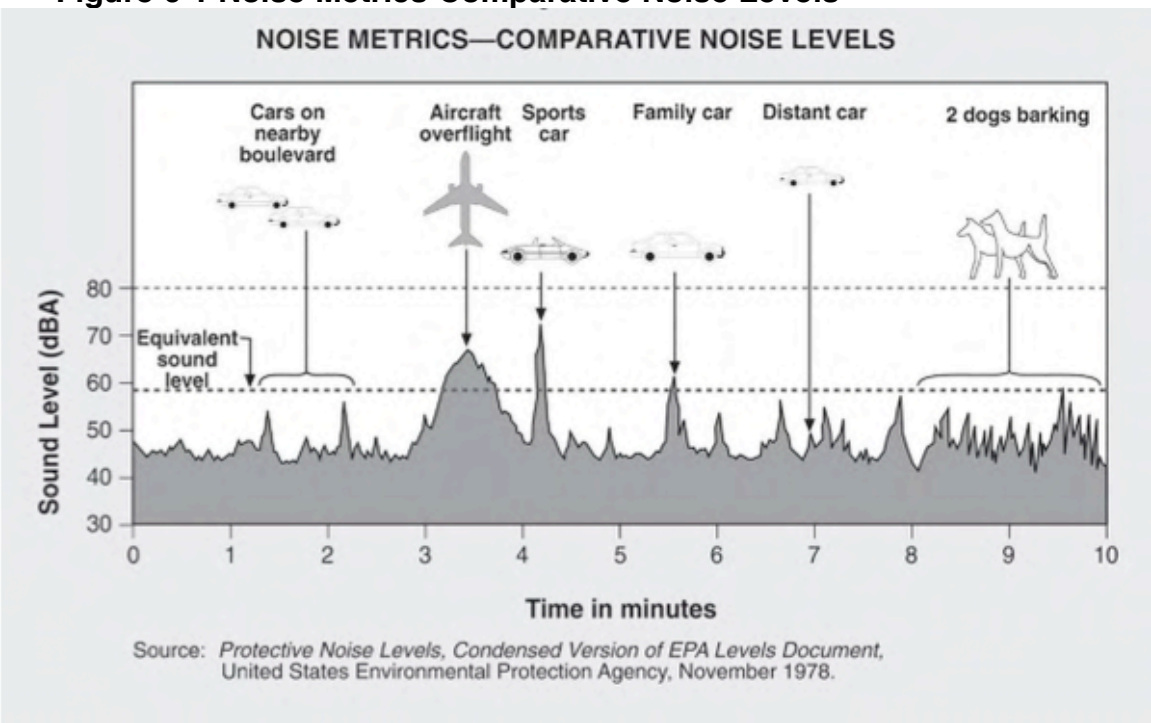
Source: Adapted from Table E, "Assessing and Mitigating Noise Impacts", NY DEC, February 2001.

The most common metric is the overall A-weighted, sound-level measurement that has been adopted by regulatory bodies worldwide. The A-weighting network measures sound similarly to how a person perceives or hears sound, thus achieving very good correlation in terms of how to evaluate acceptable and unacceptable sound levels.

The measurement of sound is not a simple task. Consider typical sounds in a suburban neighborhood on a normal or "quiet" afternoon. If a short duration of those sounds is plotted on a graph, it would look very much like Figure 6-1. In this figure, the background, or residential sound level in the absence of any identifiable noise sources, is approximately 45 dB. During roughly three-quarters of the time, the sound level is 50 dB or less. The highest sound level, caused by a nearby sports car, is approximately 70 dB, while an aircraft generates a maximum sound level of about 68 dB. The following provides a discussion of how

variable community noise is measured.

Figure 6-1 Noise Metrics-Comparative Noise Levels



Sound power level data are used in acoustic models to predict sound pressure levels. This is because sound power levels take into account the size of the acoustical source and account for the total acoustical energy emitted by the source. For example, the sound pressure level 15 ft from a small radio and a large orchestra may be the same, but the sound power level of the orchestra will be much larger because it emits sound over a much larger area. Similarly, 2-horsepower (hp) and 2,000-hp pumps can both achieve 85 dBA at 3 ft (a common specification), but the 2,000-hp pump will have significantly larger sound power level. Consequently, the noise from the 2,000-hp pump will travel farther. A sound power level can be determined from a sound pressure level if the distance from and dimensions of the source are known. Sound power levels will always be greater than sound pressure levels, and sound power levels should never be compared with sound pressure levels such as those in Table 6-3.

The sound power level of the GE 1.5- MW WTGs typically will vary between 100 and 108 dBA. This will result in a sound pressure level of about 55 to 65 dBA at 130 feet (similar in level to a normal conversation).

Virtually everything with moving parts will make some sound, and wind turbines are no exception. Well designed wind turbines are generally quiet in operation, and compared to the noise of road traffic, trains, aircraft and construction activities, to name but a few, the noise from wind turbines is very low. Outside the nearest houses, which are at least 300 meters (984 feet) away, and more often

further, the sound of a wind turbine generating electricity is likely to be about the same level as noise from a flowing stream about 50-100 meters away or the noise of leaves rustling in a gentle breeze. This is similar to the sound level inside a typical living room with a gas fire switched on, or the reading room of a library or in an unoccupied, quiet, air-conditioned office (BWEA, 2000).

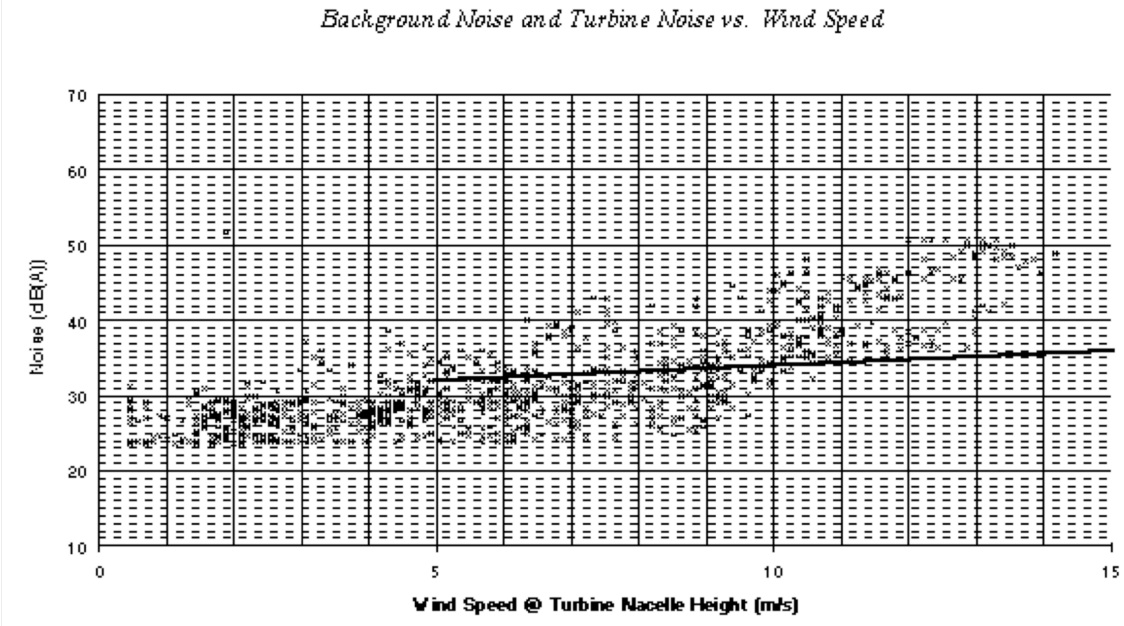
Table 6-4 Common Sound Levels

Source/Activity	Indicative noise level aB (A)
Threshold of hearing	0
Rural nighttime background	20-40
Quiet bedroom	35
Wind farm at 350m	35-45
Car at 40mph at 100m	55
Busy general office	60
Truck at 30mph at 100m	65
Pneumatic drill at 7m	95
Jet aircraft at 250m	105
Threshold of pain	140

Source: Information taken from The Scottish Office, Environment Department, Planning Advice Note, PAN 45, Annes A: Wind Power, A.27. Renewable Energy Technologies, August 1994

As table 6-4 shows, the sound of a working wind farm is actually less than normal road traffic or an office. Even when wind speed increases, as depicted in Figure 6-2, it is difficult to detect any increase in turbine sound above the increase in normal background sound, such as the noise the wind itself makes and the rustling of trees.

Figure 6-2 Background Noise and Turbine Noise vs. Wind Speed



x = Background Noise (10 minute samples)

_____ = Turbine Noise

Source: British Wind Energy Association: http://www.bwea.com/ref/noise.html accessed 12-15-09. Last updated June 15, 2000.

6.3.3 Construction Impacts

The EPA Office of Noise Abatement and Control studied noise from individual pieces of construction equipment, as well as from construction sites for power plants and other types of facilities, as shown in Table 6-5. Because specific information about types, quantities, and operating schedules of Project construction equipment is not known at this stage, data from the EPA document for industrial projects of similar size have been used. These data are conservative because the evolution of construction equipment generally has gravitated toward quieter design. Use of these data is reasonable for estimating noise levels, given that they are still used widely by acoustical professionals.

Table 6-5 Average Noise Levels from Common Construction at a Reference Distance of 50 feet (dBA)

Construction Equipment	Typical Average Noise Level at 50 ft, dBA
Air compressor	81
Backhoe	85
Concrete mixer	85
Concrete pump	82
Crane, mobile	83
Dozer	80
Generator	78
Grader	85
Loader	79
Paver	89
Pile driver	101
Pneumatic tool	85
Pump	76
Rock drill	98
Saw	78
Scraper	88
Shovel	82
Truck	91

Source: EPA (1971)

Table 6-6 shows the total composite noise level at a reference distance of 50 ft, based on the pieces of equipment operating for each construction phase and the typical usage factor for each piece. The calculated level at 1,500 ft is probably conservative because the only attenuating mechanism considered was geometric spreading, which results in a reduction rate of 6 dBA per doubling of distance; attenuation related to the presence of structures, trees or vegetation, ground effects, and terrain was not considered.

Table 6-6 Composite Construction Site Noise Levels

Construction Phase	Composite Equipment Noise Level at 50 feet, dBA	Composite Equipment Noise Level at 1,500 feet, dBA
Clearing	88	58
Excavation	90	60
Foundation	89	59
Erection	84	54
Finishing	89	59

Source: EPA (1971)

Because of the Project's distances to the nearest residence (minimum 1000 feet) and remote location, the noise levels resulting from construction of the Project will not significantly impair the environment or the social and economic condition of present or expected inhabitants in the area of site influence.

6.3.4 Operation Impacts

Each wind turbine was considered to be a point source of noise at the hub height with an overall sound power level of 106 to 108 dBA. These sound power levels represents the maximum turbine noise level determined in accordance with IEC61400-11, *Wind Turbine Generator Systems—Part 11: Acoustic Noise Measurement Techniques* (IEC, 2006) and are representative of warranted levels for the turbines being considered for this Project.

The sound power level of a WTG measured at hub height will vary between 96 and 104 dB. This will result in a sound pressure level of approximately 55 to 65 dBA at 130 ft (similar in level to a normal conversation). Due to the distances to all residences and the Project's remote location, the noise levels resulting from operation of the Project will not result in a significant detriment to, or significant impairment of the environment or the social and economic condition of present or expected inhabitants in the area of primary affect (Chugwater Flats).

CFEP plans a minimum of 1000 feet from occupied residences and the nearest WTG. Such levels would generally be considered acceptable at residences. As indicated in the Predicted Sound Pressure Levels Map, the anticipated noise level decreases with increasing distance from the Project. Under calmer turbine wind conditions, the turbines emit less noise and the expected levels would be less than those described above.

6.4 Soils and Geologic Hazards

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

Data from the Wyoming State Geological Survey (WSGS), USGS, and the Web Soil Survey provided by the Natural Resources Conservation Service (NRCS) were reviewed for information on geology and soil characteristics and earthquake hazards in the vicinity of the sites. A limited site reconnaissance was conducted to observe general Project site conditions. This section presents an overview of the site geologic setting and soil characteristics and discusses potential impacts.

6.4.1 Erosion and Landslides

The Project site overlies the northwestern portion of the Denver Basin. Bedrock geologic units that underlie the site include the White River Formation, dune sand, and loess. The White River Formation forms the boundaries of the project on the east and west sides and is comprised of Lower Miocene and Upper Oligocene rocks described as “light-colored sandstone, white taffaceous claystone, white tuffaceous blocky claystone and siltstone.” The remainder of the project area is on dune sand and loess. Loess is described as “ homogeneous, commonly nonstratified, porous, friable, slightly coherent, usually highly calcareous, fine-grained blanket deposit, consisting predominantly of silt with subordinate grain sizes ranging from clay to fine sand” (Love and Christiansen, USGS, 1985).

A desktop preliminary geotechnical site investigation was conducted in 2009. Boring logs and subsurface conditions will be further investigated by engineering procurement construction (EPC) contractor before any construction begins. Surficial soils present on the site include numerous soil complexes that classify primarily as fine sandy loam, loam, and thin solum complex (NRCS, 2008). Soils at the site are typically well drained and are formed in slopes locally as steep as 30 to 40 percent along drainage systems and hillsides. No soils at the site meet the state and federal criteria of prime farmland soils. Wyoming does not maintain a list of soils of statewide concern. Table 6-6 summarizes the properties of the predominant soils that underlie the proposed facility.

Table 6-7 Summary of Surficial Soils and Their Properties

Soil Series	Texture	Depth to Rock (inches)	Slope (percent)	Drainage Class
Bayard-Phiferson-Treon	thin solum	>80	0 to 6	well drained
Cedak-Bayard-Treon	thin solum	20 to 40	0 to 6	well drained
Cedak-Recluse-Treon	fine sandy loam	20 to 40	0 to 6	well drained
Cedak-Treon	fine sandy loam	20 to 40	0 to 6	well drained
Orpha	fine sand	>80	0 to 15	excessively drained
Recluse-Cedak	loam	>80	0 to 6	well drained
Treon-Phiferson-	thin solum	4 to 10	0 to 6	well drained
Keeline	fine sandy loam			
Turnercrest-Phiferson-Taluce	complex	20 to 40	0 to 6	well drained
Bayard-Phiferson-Treon	thin solum complex	>80	3 to 45	well drained
Featherlegs-Recluse	loam	>80	3 to 6	well drained
Mainter	fine sandy loam	>80	0 to 6	well drained
Recluse	fine sandy loam	>80	3 to 6	well drained
Recluse-Albinas-Treon	thin solum	>80	0 to 6	well drained
Vetal-Julesburg	fine sandy loam	>80	0 to 6	well drained
Alice-Recluse-Cedak	fine sandy loam	>80	0 to 6	well drained
Cedak-Recluse	very fine sandy loam	20 to 40	0 to 6	well drained
Keeline-Turnercrest	fine sandy loam	>80	0 to 6	well drained
Recluse-Graystone	very fine sandy loam	>80	0 to 6	well drained
Treon-Alice Phiferson	complex	10 to 20	0 to 6	well drained
Keeline-Taluce Turnercrest	fine sandy loam	>80	3 to 40	well drained
Taluce-Treon complex	thin solum	4 to 10	6 to 10	well drained

Thin solum, loam, and sand soils dominate the surface area. Sandy soils consist of loose, uniformly grained, cohesionless sand and silty sand that exhibits low shear strength and can be mobile. Concerns with wind turbines or transmission towers being placed in areas underlain by sandy materials includes the potential that the sandy top soils could erode, which can undermine and endanger foundations, or the loose soils could be subject to collapse when loaded or wetted. In order to avoid and mitigate these concerns, transmission towers and wind turbines either would not be located in areas of potentially unstable sandy soils or the site would be over excavated to create stable foundation conditions.

6.4.2 Faults

No potentially seismically active faults have been mapped within the Project site boundary. According to the U. S. Geological Survey's Quaternary Fault and Fold database (USGS, 2008a), the closest mapped potentially active fault is the South Granite Mountain Fault, which is approximately 100 miles to the northwest of the site. This fault is described as a 125- kilometers (km) long, west-northwest trending, north-dipping fault system. This fault is considered a Quaternary-age fault with a slip rate estimated to be less than 0.2 millimeters (mm) per year. The closest historical seismic activity was located near Casper, where earthquakes with estimated Modified Mercalli intensity scales of V to VII occurred in 1894 and 1897 (USGS, 2008b).

The seismic potential for the Project site is low. For new construction, the facilities and turbine foundations will be designed for the maximum considered earthquake (MCE), according to the International Building Code (IBC), and the site will be assigned a seismic site class based on soil properties. Seismic design issues will be fully addressed by the EPC contractor.

6.4.3 Construction/Operation Impacts

There will be a certain amount of disturbance of surficial soils and minor excavation into soils and weak bedrock associated with construction of the facilities, at WTG locations, and access roads. A Storm Water Pollution Prevention Plan (SWPPP) will be developed with the Notice of Intent (NOI) for the required Wyoming Pollutant Discharge Elimination System (WYPDES) General Storm water Construction Permit, and implemented to minimize soil erosion during construction of the Project. Therefore, BMPs will be implemented by the contractor during construction and operation of the Project to ensure that erosion is minimized and other adverse impacts on area soils do not occur. BMPs are discussed in more detail under Section 6.7, *Surface and Groundwater Resources*, Section 7.2.4, *Plans for Alleviating Impacts: Soil Resources and Geologic Hazards*, and Section 7.2.8, *Plans for Alleviating Impacts: Surface and Groundwater.*

Gullying, rapid erosion, and localized flooding currently occur in the ephemeral and intermittent drainages during precipitation events and snowmelt. Proper BMPs, erosion control and protection features, and engineering design and controls will be implemented to minimize or eliminate the potential for increased erosion and protect the Project facilities.

6.4.3.1 Geotechnical Investigation for Final Design

The subsurface conditions at every wind turbine site can have variable soil properties that influence the engineering design and construction. Therefore, a detailed geotechnical investigation and testing program will be conducted to evaluate the engineering properties of the soils and measure groundwater levels. Geotechnical analyses will be used to calculate bearing capacity of the soils and bedrock and conduct stability analysis of the turbines.

The geotechnical investigation will consist of a combination of soil borings, rock coring, geophysical investigations, and test pits. Shallow sampling (upper 5 ft of soil) is typically targeted for access road, crane path, crane pad design, and collector cable design. Deeper sampling (up to 50 ft) will be used to evaluate foundation conditions for the wind turbines. Samples collected during the investigation will be tested for engineering properties including compressive strength, Atterberg limits, grain size, and moisture content.

Wind farm civil infrastructure includes permanent and temporary access roads, temporary crane walk paths, crane pads, turbine foundation, and possibly public road improvements. Each of these components requires specific design calculations, drawings, and final engineering design for successful construction and future operation.

Various foundation types can be used for turbine support. These can include gravity/ spread footings, anchored pads, drilled shafts, and deep piles. The foundation type is selected based on soil conditions and depth to bedrock. During the engineering design of turbine foundations, the soil properties of the site, dynamic loading due to operation of the turbine, and site seismic properties will be considered. Foundation load data for each specific turbine type (obtained from the turbine manufacturer) includes extreme and normal operating loads, required foundation stiffness, and other design criteria used for final foundation design.

Seismic considerations consist of evaluating the site with respect to anticipated maximum earthquake ground motions and the resulting seismic loading on the turbine. Seismic design values are based on the engineering properties of the upper 100 ft of the subsurface soils and rock, and also the short- and long-period spectral response acceleration as a percentage of gravity.

Future geotechnical investigation will be conducted for final site design to

address the issues described above. Proper engineering design will be used for all Project facilities. Therefore, no impacts associated with geologic hazards such as seismic events, settlement, or landslides that would substantially impair health, safety, or welfare are expected to occur as a result of implementation and construction of the Project.

6.5 Cultural Resources

Rule I Section 7(xiii)(C) – Cultural Resources. Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts which may result from the proposed facility, which evaluations, plans and approvals shall cover archaeological and historical resources.

Cultural resources of concern consist of historical or archaeological sites that are listed on or are eligible to be listed on the National Register of Historic Places (NRHP).

6.5.1 Regulatory Jurisdiction

The National Historic Preservation Act (NHPA) is the principal federal law guiding federal actions with respect to the treatment of cultural, archaeological, and historic resources. Section 106 (16 USC 470f) of the NHPA requires federal agencies, prior to taking action to implement an undertaking, to take into account the effects of their undertaking on historic properties and to give the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO) a reasonable opportunity to comment regarding the undertaking. Historic properties are “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP” (16 USC 470w [5]). The criteria used to evaluate the NRHP eligibility of properties affected by federal agency undertakings are contained in 36 CFR 60.4.

The lead federal or state agency that administers the land or minerals or that issues key permits determines the level and scope of cultural resources inventory that will be required for a project.

6.5.1.1 Federal Lands

Development of any area that is predominantly federal surface lands or federal minerals would require a complete cultural resource inventory in compliance with Section 106 of the NHPA. Consideration of potential effects on cultural resources by actions on federal surface lands or involving federal permits or funding may be required by the National Environmental Policy Act (NEPA) or Section 106 of the NHPA. No federal lands will be occupied or disturbed during construction or operation of this Project.

6.5.1.2 State Lands

There is no nexus for Section 106 consultation on State lands unless a federal action would serve as the trigger. With respect to discoveries located on easements obtained across State- owned lands, the Board of Land Commissioners' Rules and Regulations, Chapter 3, Section 9(b) requires that the Director of the Office of State Lands and Investments be notified and that the SHPO, the State Archeologist, State Geologist, or other authority will be notified if "deemed necessary" by the Director.

6.5.1.3 Private Fee Lands

There is no nexus for Section 106 consultation on private fee lands unless a federal action would serve as the trigger. Additionally, there are no State laws applicable to the protection of cultural resources on private fee lands.

6.5.2 Survey Results

In consultation with Wyoming State Historic Preservation Office (WYSHPO), a Class I Inventory determined that none of the proposed project area had been subject to a previous block inventory. It was determined that a Class II Cultural Resource Inventory was appropriate for the Project site (SHPO File # 0509JRD018). Archaeologists completed a Class II Cultural Resource Inventory for 4,480 acres within Phase I of the Project area in 2009. The survey area is shown in the Cultural Resource Inventory Area Map (**Appendix G**) and the Class II report was submitted to the WYSHPO for their review.

The Class II Inventory "determined that virtually all of the proposed project area has been subject to cultivation- with wheat fields, grass fields, and plowed (fallow) fields alternately in evidence throughout. Owing to protracted cultivation (spanning decades), it is hypothesized that the potential for buried cultural materials is extremely low, perhaps even non-existent, across the project area." (NPAS, July 2009)

The findings of the Class II Cultural Resource Inventory were submitted for review to WYSHPO. The analysis by WYSHPO found the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). Based on the information provided in the Class II field inventory SHPO concurs that no historic properties, as defined in 36 CFR ξ 800.16(l)(1), will be affected by the project as planned.

6.5.3 Construction/Operation Impacts

In response to the Class II inventory data and the recommendations of WYSHPO

(letter of confirmation in **Appendix D**), CFEP will proceed with the project subject to the following stipulation:

> If any cultural materials are discovered during construction, work in the area shall halt immediately, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interiors' Professional Qualification Standards (48 FR 22716, Sept. 1983).

Overall, no adverse impacts to cultural resources are anticipated from construction of the Project, due to siting and subsequent micrositing or monitoring activities by CFEP that will avoid impacts that may impair the health, safety, or welfare of any present or expected cultural resources in the area of primary affect.

6.6 Water Supply Yield and Analysis

W.S. 35-12-108(a) Water Supply Yield and Analysis. Quantity of water available; analysis; public comment; opinions: If an applicant applies for an industrial siting permit, pursuant to W.S. 35-12-106, or for a waiver of the application provisions, pursuant to W.S. 35-12-107, for a facility which requires the use of 800 or more acre-feet per year of waters of the state of Wyoming annually, the applicant shall prepare and submit to the state engineer a water supply and water yield analysis with a request for a preliminary and final opinion as to the quantity of water available for the proposed facility.

The Wyoming Constitution defines that all natural waters within the boundaries of the state are declared to be the property of the State. The Wyoming State Engineers Office (WYSEO) is charged with the regulation and administration of the water resources in Wyoming.

6.6.1 Regulatory Jurisdiction

If an applicant for an industrial siting permit plans to construct a facility that will use more than 260.7 million gallons (MG) (800 acre-feet [ac-ft]) of water per year, the applicant must submit a water supply and water yield analysis to the State Engineer. The State Engineer will then review the analysis and "render a preliminary opinion as to the quantity of water available for the proposed facility" (W.S. 35-12-108(c)). This preliminary opinion will be made available for public comment, and the State Engineer will consider submitted comments in preparing a final opinion. The State Engineer's final opinion will be binding on the ISC.

6.6.2 Construction Water Uses

Utilizing magnesium chloride for dust control will minimize water use during construction as requested by Jack Bell, P.E. District 2 Engineer of Wyoming Department of Transportation. Water use during construction will be mainly as an additive to the concrete batch plant. During Project construction, water will be obtained from a municipal water source, an existing senior water rights holder and trucked to the site, an existing groundwater well, or a new well issued by the WYSEO permit to appropriate groundwater. If possible, water will be obtained on site to minimize hauling distances and hauling traffic within the area of site influence. Once available on site, water will either be put to immediate use or placed in an on-site temporary water storage tank. Table 6-7 provides an estimate of total construction water use for the Project.

Approximately 10.8 MG (33.14 ac-ft) will be required to support all phases of the Project over the estimated 3 year construction period, as shown in Table 6-7. No water will be used to control dust on constructed access roads. .

Based on the estimated construction water balance calculations, the Project will not exceed the 800 ac-ft per year (ac-ft/yr) threshold and will not require a WYSEO water supply yield analysis or opinion.

Table 6-8 Estimated Construction Water Use

Material	Foundations	Total Water Use (Approximate)
Water Use for Concrete Mixing		
13,500 gallons / GE WTG (400 yd^3 per foundation)		
Phase I	116	1,566,000 gallons (4.8 ac-ft)
Phase II	370	4,995,000 gallons (15.3 ac-ft)
Phase III	314	4,239,000 gallons (13.0 ac-ft)
Water Use for Dust Control and Road Compaction	0	0 gallons
Total Gallons		10,800,300 gallons (33.14 ac-ft)

6.6.3 Operations Use

Once the Project is operational, only minimal daily water use will be required. The primary water requirement will occur at the O&M building and will likely be limited to restrooms, sinks, hand washing station(s), shower, internal/external hose, and dishwasher. At peak employment during Phase I up to 16 staff will be employed at the Project, and using a very standard assumption for commercial office use for each aspect of water usage, the operational water use will be approximately 2,000 gallons per day, resulting in 720,000 gallons (2.2 ac-ft) per year during operations.

Based on the 2.2 ac-ft/yr water balance calculation for operations, the Project will not exceed the 800 ac-ft/yr thresholds and will not require a WYSEO water supply yield analysis or opinion.

6.6.4 Water Sources

Wyoming water law operates under the prior appropriation doctrine, or “first-in-time, first- in-right.” Those holding an earlier priority water right are allowed to receive their full portion of water before those with junior rights may receive water under their right.

Water rights can be issued to anyone who plans to make beneficial use of the water. Recognized beneficial uses include irrigation, municipal, industrial, power generation, recreational, stock, domestic, pollution control, in stream flows, and miscellaneous. Water rights holders are limited to withdrawals necessary for the specified purpose.

During Project construction, water will be obtained from a municipal water source, an existing senior water rights holder and trucked to the site, an existing groundwater well, or a new well issued by the WYSEO permit to appropriate groundwater.

6.6.4.1 Compliance with Platte River Recovery Implementation Agreement

In 1997, Colorado, Wyoming, Nebraska, and the DOI came together in a unique partnership to develop a shared approach to managing the Platte River. The result was the Platte River Recovery Implementation Program, a process to better manage the Platte River for the health of the ecosystem and the people who depend on it. The program’s three main elements include increasing stream flows in the central Platte River during relevant time periods through retiming and water conservation/supply projects; enhancing, restoring, and protecting habitat lands for the target bird species; and accommodating certain new water-related activities. Mitigating the adverse impacts of certain new water-related activities will be met through the implementation of state and federal depletion plans.

Any new or existing groundwater wells that would be utilized for Project water supplies would be located within the area identified by the WYSEO as having no Platte River Recovery Implementation Agreement issues or conflicts. Notwithstanding, the WYSEO will regulate surface and groundwater use/supply for the Project to ensure compliance with applicable regulations of the Platte River Implementation Agreement. Therefore, the Project will be constructed and operated in accordance with water use/supply permits and will be consistent with the goals of the Platte River Recovery Implementation Agreement.

6.7 Surface and Groundwater Resources

W.S. 35-12-108(a) Water Supply Yield and Analysis. Quantity of water available; analysis; public comment; opinions: If an applicant applies for an industrial siting permit, pursuant to W.S. 35-12-106, or for a waiver of the application provisions, pursuant to W.S. 35-12-107, for a facility which requires the use of 800 or more acre-feet per year of waters of the state of Wyoming annually, the applicant shall prepare and submit to the state engineer a water supply and water yield analysis with a request for a preliminary and final opinion as to the quantity of water available for the proposed facility.

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

Baseline surface and groundwater resources were reviewed and water use calculations were estimated for the Project in Sections 6.6.2 and 6.6.3. The following sections detail the baseline conditions and potential Project impacts on surface water and groundwater in the Project area.

6.7.1 Regulatory Jurisdiction

Water quality associated with construction and operation of the Project will be subject to the WDEQ – Water Quality Division (WQD) Standards and Regulations. Specifically, implementing Water Quality Rules and Regulations are found in Chapters 1 to 23, as well as promulgated rules adopted in the Wyoming Environmental Quality Act.

6.7.2 Surface Water

The Project lies within the North Platte River Basin, Lower Laramie Sub-Basin watershed. The major stream within the vicinity of the Project area is Chugwater Creek. Based on field surveys and hydrological information, the drainage system in and near the Project is fed by snowmelt and rainfall events and is generally dry during most of the year. Box Elder Creek is an ephemeral stream on the southeast side of the Project site. Surface water resources are presented in the Surface Water Map in **Appendix E**.

Chugwater Creek – Chugwater Creek lies approximately one mile west of the westernmost edge of the Project area and meanders northward joining the Laramie River approximately eighteen miles north of the northernmost border of the Project. The Chugwater Creek watershed originates on the east face of the Laramie Mountains in eastern Albany County comprising approximately 654 square miles. The mainstem of Chugwater Creek is about 87 miles long. Land

ownership along the borders of the mainstem is about 80% private. It emerges from the mountains, flowing northeast past Chugwater, where it turns northward and joins the Laramie River approximately seven miles northeast of Wheatland (WG&F, 2003). Chugwater Creek is on the DEQ's 303D list for impaired waters for aquatic life uses due to excessive highly mobile fine sand. No road crossings or other direct disturbances are proposed for Chugwater Creek.

Box Elder Creek – Box Elder Creek is an ephemeral stream that flows into Glomill Reservoir, which is located in a closed basin that has no outlet. Box Elder Creek flows northeast to Glomill Reservoir.

6.7.2.1 Construction Impacts

No roads or power collection lines are planned to cross or otherwise affect Chugwater Creek. Actual impacts from final designs may vary; however, road and culvert designs will be provided by licensed engineers to ensure structural stability and regulatory compliance and minimize erosional concerns.

Project construction activities are not anticipated to discharge into surface waters. However, potential impacts to surface water features from erosion and sedimentation will be minimized and prevented by measures to control runoff during construction of the Project. A SWPPP will be developed with the NOI for the required WYPDES General Stormwater Construction Permit and implemented to minimize impacts on surface water resources during construction of the Project. Construction of roads and installation of appropriately sized culverts is expected to be an improvement to the existing two track roads and reduce erosion, sediment accumulation, and downstream sediment flows during large precipitation events.

Any work within jurisdictional wetlands and waters of the U.S. would be conducted in accordance with Section 404 and 401 permits of the CWA. Ephemeral stream crossings will be designed to accommodate the runoff of a 50-year storm at minimum. Drainage systems with steep slopes and erodible slopes will be evaluated to determine proper sediment and erosion control BMP measures. These BMPs may include catch basins, roadway ditches, and routine maintenance to remove sediment accumulation in proximity to established culverts. Additional erosion control practices, such as flared-end section and rock dissipation, will be implemented near culvert outlets. Where necessary, trench slopes at the pipe entrance will be stabilized. Other BMPs are discussed in more detail in Section 7. No adverse or significant impacts to surface water resources in the area of site influence are anticipated from Project construction.

The proposed Project infrastructure will be constructed outside of the regulatory floodplain. Therefore, no adverse or significant impacts to floodplains in the area of site influence are anticipated as a result of Project construction.

6.7.2.2 Operation Impacts

CFEP will operate the Project in accordance with all issued conditions of approval from the WDEQ-ISD and all relevant local, state, and federal permits. See correspondence with WYSEO regarding project planning and permitting (**Appendix D**). Therefore, operation of the Project will not result in significant impact to surface water resources that would impair the health, safety, or welfare of current or expected inhabitants in the area of site influence.

6.7.3 Groundwater

The North Platte River Basin, Lower Laramie Subbasin watershed contains a wide variety of geologic formations and structural elements. The Project area is within the Quaternary and Late Tertiary or "High Plains" aquifer systems, as presented in the Aquifer Map (**Appendix E**).

The Quaternary aquifer covers the eastern half of the Project area, while the Late Tertiary aquifer covers the western half of the Project area. The Quaternary aquifer is composed mostly of non-alluvial deposits. The Late Tertiary aquifer is composed of Ogallala, White River Group, and Arikaree formations. The Quaternary and Late Tertiary Aquifer Systems are the most extensively developed aquifer systems within the Lower Laramie River subbasin. These two aquifer systems are the most heavily used for high capacity wells (Wyoming State Water Plan, 2008).

The majority of total permitted groundwater use in the Lower Laramie River subbasin is for agricultural, municipal, industrial, and domestic purposes. Agriculture use, especially for irrigation, accounts for approximately 95 percent of total permitted groundwater use in the subbasin. Municipal wells are the second largest permitted groundwater user at over 2 percent of total permitted subbasin use. Three municipal and one community public water systems are located in this area. Permitted industrial groundwater use in the subbasin is at approximately 2 percent of the total permitted subbasin groundwater use and is primarily for coal-fired electric power production near Wheatland. Domestic use is a minor component of permitted groundwater use in the Lower Laramie River subbasin. (WWDC, 2008).

Groundwater wells within the Project area vary in depth from 108 to 400 ft bgs, with static water levels ranging from 33 to 130 ft bgs (WSEO, 2009). The location of wells recorded by WYSEO within and around the Project area are shown in **Appendix E**.

6.7.3.1 Construction Impacts

One of the environmental benefits of wind generation is that the wind farms require minimal amounts of water during both the construction and operations phase. More importantly, wind generation, by its nature, has minimal requirements for water. During the construction phase, water supply for the Project will be met with either an existing water right purchase or a new water right allocation (if the water resources in the area have not been fully appropriated).

Portable toilets will be provided for on-site sewage handling during construction and will be pumped and cleaned regularly by the construction contractor. No other wastewater will be generated during Project construction. Any quantities of solid waste materials generated by activities at the Project site will be disposed of in an appropriate manner at suitable licensed disposal sites. Licensed waste haulers (**Appendix D** correspondence with TDS Landfill) will be used to remove wastes and dispose of them in licensed and approved facilities according to local regulations and procedures.

The construction uses of groundwater will not result in substantial impairment to the groundwater resources or the health, safety, or welfare of the present or expected inhabitants in the area of site influence.

6.7.3.2 Operations and Maintenance Impacts

Most of the operational water usage would be associated with potable water needs for the operations staff. As previously discussed, an estimated 2.2 ac-ft/yr would be required to operate the Project. It is anticipated that the current water and sewer system within the Town of Chugwater will be used to supply the O&M building for domestic use. Therefore, there will be neither operational impacts to groundwater nor impairment to the groundwater resources or the health, safety, or welfare of the present or expected inhabitants in the area of site influence.

6.8 Land Use

Rule I Section 7(i)(i) – Land Use. Land use designation of the site location, including whether the use of the land by the industrial facility is consistent with state, intrastate, regional, county, and local land use plans, if any. The analysis shall include the area of land required and ultimate use of land by the industrial facility and reclamation plans for all lands affected by the industrial facility or its dependent components.

This section presents information regarding existing and future land uses, zoning, and adopted land use plans and regulations for the study area. It analyzes the consistency of the Project with current and future land uses, policies, and plans.

The Project site is located in Platte and Goshen Counties, Wyoming. Project lands are composed of private-fee, and State-fee lands, which are currently dedicated to livestock grazing and agricultural cultivation. The existing land uses in the vicinity include grazing land for livestock, agricultural cultivation, and rural residential. According to the Platte and Goshen County Assessed Land Use maps, the Project site is located within an Agricultural area of each county and outside of any incorporated municipal limits.

6.8.1 Consistency with Land Use Plans

Rule I Section 7(xvi) – Consistency with Land Use Plans. Compatibility of the facility with state or local land use plans, if any.

Local land use plans establish the vision for how a jurisdiction can develop and establish the goals, objectives, and action items for achieving that vision. The plans also establish a framework to guide and evaluate future development. A land use plan is a key tool that communities use to protect valued resources, guide development in a predictable manner, and encourage a preferred patterning and design of the built environment. These land use plans, in combination with the zoning code, provide a community the ability to evaluate the compatibility of new development and ensure that the objectives of that community are achieved.

Platte County formulated a Community Development Plan in 2008 (Platte County, 2008). The Plan outlines the goals and objectives and strategies to implement those goals for the county and the incorporated municipalities located within the county. Platte County and all incorporated communities within the county will use this document as a guide for evaluating future land use proposals and development.

The proposed wind energy project supports the goals and strategies put forth in the Community Development Plan and furthers the following goals where the energy industry is specifically mentioned in Section 4.8 Wind Energy Potential:

> A significant potential for economic growth of Platte County is development of wind energy. The County has some of the best potential for wind power anywhere in the nation. Platte County, being proactive, has adopted wind energy regulations in order to facilitate development of wind farms. Many landowners have formed associations or coops to be in a stronger position to negotiate land leases and construction agreements with wind energy providers.
>
> A present concern is a lack of transmission lines in the County. Grant Stumbaugh, Area Coordinator for the Wyoming Resource Conservation and Development Council, indicates there are several anticipated wind projects

from sponsor Trans-Elect who have contracted for potential transmission line construction. The proposed trans-mission lines are the Wyoming-Colorado Intertie Transmission Project and the High Plains Express Project. Both projects are proposed to run through the middle of Platte County. Both are still in the initial stages and could change overnight. The project could mean construction of transmission lines across the County within five or six years.

Goshen County developed a Land Use Plan in 1996 that established local goals, objectives and policies for thirteen subject matters. There is one subject matter that pertains to energy and wind development (Goshen County,1996):

Subject Matter 13: Energy Conservation

Goals and Objectives:

To plan land uses that encourages the conservation of energy.

Encourage local developers to utilize solar, wind, water and geothermal energy resources in their developments.

Policies:

Goshen County and its communities will advocate good energy conservation measures.

Land in Goshen County is primarily used for the production of crops and the grazing of animals. Wind energy development coincides well in rural agricultural areas. CFEP believes that a symbiotic relationship can exist between wind energy development, livestock grazing, farming, the community, and the environment.

The Project site is located outside of any planned future residential or commercial uses to avoid conflict with these land uses that may be planned for either Platte or Goshen County and the Town of Chugwater.

The wind energy industry is a newly emerging industry, with the potential to create full-time jobs for the residents of communities near project sites. This will help the Chugwater community achieve a long-term sustainable economy and added job opportunities. It is anticipated that this Project would generate a substantial number of temporary work opportunities during the 24-month construction period and up to 64 full-time permanent positions at the end of the development of all three phases, many of which are expected be staffed by the local residents.

6.8.1.1 State of Wyoming Lands—Special Use Leases

A Special Use Lease was obtained from the State of Wyoming Board of Land

Commissioners, pursuant to Chapter 5, Special Use Leasing under the Board of Land Commissioners Rules and Regulations. The special use lease contains 2,240 acres of state land in the Project area. Special use means any use of land other than grazing, agriculture, extraction of minerals, all named uses authorized within an easement granted pursuant to Chapter 5 of the Rules and Regulations, or hunting, fishing, or general recreational uses pursuant to Chapter 13 of the Rules and Regulations.

6.8.2 Construction Impacts

Existing access roads will be used or improved where practicable to minimize the Project's impact to resource land. The Project will be designed with all turbines located at least one tip height away from any publicly accessible land and existing infrastructure, including public roads, transmission lines, and railroads. This will ensure the Project does not impact activities on land adjacent to the Project area. The surrounding land is primarily used for grazing. Construction of the Project would not conflict with any adopted land use plan, policy, or regulation.

6.8.3 Operation Impacts

Direct land use impacts would include the conversion of undeveloped grazing lands to an industrial facility and corresponding access roads. The operation of wind turbines is highly compatible with grazing and farming activities. Cattle, sheep, and other domestic animals routinely graze underneath operating wind turbines at projects across the United States and around the world, and ranchers regularly farm around wind turbines. Operation of a wind energy facility would be compatible with existing and future surrounding land uses.

It is not anticipated that the Project would limit future land development opportunities.

6.9 Recreational Resources

Rule I Section 7(xiii)(B) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover recreational resources.

Rule I Section 7 (i) (vi)(G): An analysis of user-oriented community recreational facilities and programs and urban outdoor recreational opportunities including descriptions of recreational resources, locations of the recreational resources, and the types of recreational resources and an analysis of outdoor, resource-oriented recreational opportunities including locations and types of the recreational resources.

The following provides summary details on the parks and recreational opportunities in the region. No public parks or recreational facilities exist within the Project area, only one park is nearby in the Town of Chugwater providing opportunities for picnicking and a playground. State-fee lands and federal lands in the Project vicinity provide for recreational hunting, camping, hiking, and off-highway vehicle use where public access is available.

Recreational resources were identified based on information from the state of Wyoming and the National Register of Historic Places (NRHP). The map shows that recreational resources within and adjacent to the area of site influence include a mixture of county-, municipality-, and privately owned parklands.

6.9.1 Local City and County Parks

Only one park and recreation facility was identified using municipal and state parks websites, information provided by the Town of Chugwater, and site visits. Staats Park, located within the town of Chugwater, is a small grassy area consisting of a swing-set and a jungle gym. Staats Park is located approximately five miles west of the western most border of the Project area. The Parks and Recreation Map **(Appendix E**) illustrates the location of the facility in comparison to the Project site. The analysis indicates that there is only one locally owned park or recreation facility within 10 miles of the Project boundary. There are no Wyoming State Parks or National Parks within the 10-mile study area.

6.9.2 State, National Parks and Historic Sites

A variety of state parks, national parks, and historic sites occur in the region and may be used by construction personnel. The following provides summary details on the parks in the region.

Fort Laramie National Historic Site. Fort Laramie is located off State Highway 26; or Interstate 25 (exit 92) then on to the town of Fort Laramie in Goshen County. The Fort Museum and Visitor Center are open daily. Audio tours are available and allow you to tour the fort at your own pace. Other activities include bird watching, fishing, and hiking.

Glendo State Park and Reservoir. The Glendo State Park and Reservoir is located on the North Platte River, 6 miles southeast of the town of Glendo, in Platte County. Access to the park is from I-25 via County Road 17 (Glendo Park Road). The Glendo State Park maintains seven campgrounds, six boat ramps, and a marina concession. Available fish species for angling include walleye, yellow perch, and channel catfish. Channel catfish are stocked in the reservoir, and brown trout, rainbow trout, and channel catfish are stocked in the river above the reservoir. Below the dam, the river is stocked with brown, rainbow, and cutthroat trout.

Wyoming State Parks and Historic Sites manage recreational resources for the USBR. The park contains scenic overlooks and three interpretive nature trails. The Glendo Dam Wetlands Trail, located along the river just below the dam, features two fishing/ observation piers. The Muddy Bay Wetlands Interpretive Nature Trail is located on the east side of Muddy Bay. The Glendo Dam Overlook Trail is located north of Glendo Dam. Across from the Glendo Power Plant and below the dam is a public access boat ramp providing access to the North Platte River.

Guernsey State Park. Guernsey State Park is located off Interstate 25 Exit 92, near the town of Guernsey in Platte County. Guernsey State Park provides seven campgrounds. Five are around the lake. All campgrounds include comfort stations, picnic tables, fire grills and drinking water. We also have a trailer dump station located at the south entrance to Guernsey State Park. This park provides the finest examples of Civilian Conservation Corps (CCC) work in the Rocky Mountain area. Built by the CCC, the Guernsey Museum, the Castle and Brimmer Point are available to explore. The museum is perched on a high cliff, overlooking the water. The Castle, with its giant fireplace and winding steps, leads to an observation area for a spectacular view of the park.

An extensive network of trails was originally planned and partially built during the operation of the CCC camps. Ever since that time hiking and trail use has been a major feature at Guernsey State Park. Approximately ten miles of CCC trails have been restored on the park. Starting point for the trail system is at the Brimmer Point turnoff. The trail system consists of several loops, which provide a variety of scenic views of the park, reservoir and the dam. Most of the trails are moderately physically demanding.

The Oregon Trail was one of the primary routes used by the immigrants' westward migration across the plains from 1841 to 1869. Today, in many parts of Wyoming, remnants of The Oregon Trail can still be seen. Some of the best examples are the "ruts"; located just 1/2 mile south of the town of Guernsey, off Highway 26.

Register Cliff located two miles southeast of Guernsey provided travelers with a "chalkboard" where they placed their names for those who followed. The landmark still remains much the way it looked to pioneers on wagon trains journeying west.

Hawk Springs State Park. Hawk Springs Recreational Area in Goshen County, is located by taking U.S. Highway 85 then State Route 151. Hawk Springs reservoir boasts a blue heron rookery, including birds such as the blue-winged and green-winged teal, gadwall, pintail, wood duck, and great horned owl. Fishermen have long known that fishing is good at Hawk Springs. Game fish include walleye, largemouth bass and channel catfish. Winter ice fishing is also

good at the park. There are 24 camping units, comfort stations, and accommodations for trailers. A boat ramp and parking area are available.

Oregon Trail Ruts Historic Site. U.S. Highway 26, Interstate 25 (exit 92) The Oregon Trail was one of the primary routes used by emigrants heading westward across the American continent in the 1840s. Although many remnants of the trail can be seen in Wyoming, the Oregon Trail tracks here are notable because they were cut into solid rock. A short trail leads uphill to four-foot deep gouges cut by the wheels of thousands of wagons. This site was declared a National Historic Landmark in 1975.

Medicine Bow-Routt National Forest. The Medicine Bow-Routt National Forests include lands extending from north central Colorado to central Wyoming. The National Forests encompass portions of many mountain ranges, including the Gore Range, Flat Tops, Parks Range, Medicine Bow Mountains, Sierra Madre, and Laramie Range, which provide year- round recreation opportunities for thousands of people. These lands also provide a number of other important uses, including wildlife habitat, timber, and livestock grazing, and are a vital source of water for irrigation, domestic use, and industry.

Register Cliff Historic Site. US Highway 26; Interstate 25 (exit 92). Also referred to as Register Cliff and Sand Point Station. The cliff is sandstone precipice rising one hundred feet from the valley floor of the North Platte River. Despite erosion by wind and water it remains very much as travelers on the Oregon Trail saw it more than 100 years ago. One of three main sites along the Oregon Trail where emigrants left inscriptions, Register Cliff is the closet to civilization. A small trading post was located near the cliff. In 1861, it was turned into a Pony Express stop, and later a stage station. A walkway and informative sign at the base of the cliff enable the visitor to learn more about this historic site.

6.9.3 Construction Impacts

It is anticipated that the Project would result in a temporary population increase in the area of site influence during construction. A limited number of workers are expected to visit the regional recreational resources in the vicinity. It is anticipated that a very small incremental increase in park visitations would occur during construction. This usage would be limited to periods when employees are not working and would not result in a significant increase in annual visitation. Therefore, the Project is not expected to result in impacts from increased visitation to area parks that would substantially impair the health, safety, and welfare of present or expected local inhabitants.

The transportation analysis concluded that the additional vehicle trips generated by the construction and operations of the Project would have a negligible impact on the operations of the adjacent roadway network. Therefore, traffic on state roads and federal interstates is not considered further.

Due to the distance between the Project site and recreation facilities and the size of the construction workforce, no temporary construction impacts at any parks or recreation facilities in the area of site influence are anticipated. Access to parks and recreation facilities would not be restricted during the construction phase.

Additionally, hunting on the private portions of the Project site will not take place during the construction period. However, where access to state and federal lands is available in and near the Project, hunting shall continue as per the intent of each landowner or administering agency.

6.9.4 Operation Impacts

Operation of the proposed Project would not directly impact any parks or recreation facilities. It would not require the conversion of park or recreation facilities to industrial facilities. The closest park lies approximately 5 miles from the Project boundary. From this distance operation of the Project would not adversely affect recreational opportunities nor diminish the quality of the recreational experience for users.

Hunting on the private portions of the Project site shall be allowed during the operation as follows: (a) hunter must sign the Indemnity and Waiver of Liability form that was agreed upon between CFEP and the landowner; (b) hunter agrees to promptly reimburse CFEP for any and all damages to any of the wind power facilities caused by the hunter; (c) at least seven days prior to entry onto the property, hunter shall notify CFEP of the date and time of entry by facsimile, phone, or at the office in Chugwater. Where access to state and federal lands is available in and near the Project area, hunting shall continue as per the intent of each administering agency.

6.10 Wetlands and Waters of the U.S.

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

A wetlands survey completed in August 2009 for approximately 4,480 acres of the Project area. Additional desktop review and field investigation of the Project layout was completed in 2009. In consultation with the local district of the Department of the U.S. Army Corps of Engineers (USACOE), it was determined that the only aquatic resources within the project area are ephemeral and intermittent streams identified as Box Elder Creek and unnamed tributaries.

Box Elder Creek flows into Glomill Reservoir, which is located in a closed basin that has no outlet. "Therefore, none of these streams are tributaries of interstate waters and they do not support any other forms of interstate commerce so the project area does not contain any waters of the United States as defined at 33 CFR Part 328.8 (a)." "As a result of this analysis, we have determined that Department of the Army authorization is not required for any activities associated with construction of wind turbines within the project area because it would not require any discharges of fill material into waters of the Untied States." (**Appendix D** for letter of correspondence with USACOE).

6.10.1 Regulatory Jurisdiction

The Clean Water Act (33 USC § 1251, et seq.) is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the U.S. The following are jurisdictions within the CWA:

Section 404—regulates the discharge of dredged and fill material into waters of the U.S., including wetlands

Section 402—NPDES permits for discharge of pollutants Section 401—State certification of water quality

6.10.2 Wetlands

No potentially jurisdictional wetlands were identified in the areas proposed for disturbance during the field surveys completed in 2009.

6.10.3 Waters of the U.S.

The Project roads and electrical collection system will cross unnamed ephemeral drainages. All drainages are assumed to be jurisdictional under the CWA.

6.10.4 Construction Impacts

Based on the preliminary site layout, ephemeral and intermittent streams along with unnamed tributaries would be crossed by Project facilities. As previously mentioned in 6.10, the ephemeral and intermittent streams along with unnamed tributaries are not jurisdictional waters of the United States as defined at 33 CFR Part 328.8(a).

General permits known as Nationwide Permits authorize construction activities with minor impacts. Nationwide Permits were published in Part II of the *Federal Register* (Vol. 72, No. 47). Such permits are available for a period of 5 years. A standard (individual) permit will be required if the loss of waters of the United States would exceed Nationwide Permit criteria. The least environmentally damaging practices will be employed by CFEP through careful micrositing of Project facilities. Modifications to the site layout are anticipated to be made throughout the planning process and will occur during the Project engineering design completion stages. Therefore, the final site layout and final access road and collector line engineering designs will be located to minimize impacts to all waters within and surrounding the Project area.

The Project will be constructed in accordance with the terms and conditions of any issued CWA permit and will use road and culvert designs provided by licensed engineers to ensure that there are no significant impacts to potential waters of the U.S. In addition, due to micrositing activities by CFEP, the Project will avoid significant impacts that may impair the health, safety, or welfare of the resource or the health, safety, or welfare of the present or expected water resources in the area of site influence.

6.10.5 Operation Impacts

The Project will be operated in accordance with the terms and conditions of the issued CWA permit. Use and routine maintenance of roads are not expected to impact waters of the U.S. or wetlands. Operation of the Project would not discharge into or alter the flow of any wetlands or waters of the U.S.

6.11 Scenic Resources

Rule I Section 7(xiii)(A) – Scenic Resources. Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts which may result from the proposed facility, which evaluations, plans and approvals shall cover scenic resources.

Visual or scenic resources are the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Visual resource or scenic impacts are generally defined in terms of a Project's physical

characteristics and potential visibility and the extent to which the Project's presence would change the perceived visual character and quality of the environment in which it would be located.

6.11.1 Regulatory Jurisdiction

ISD regulations state that scenic resources must be taken into account in the application process. However, visual resource standards have not been specified at the state or county level.

6.11.2 Introduction

This analysis documents the existing visual conditions on the site and in the surrounding area and assesses the extent to which the proposed Project would affect the valued qualities of the area's scenic resources.

6.11.3 Visual Conditions on the Site and in its Surroundings

6.11.3.1 The Project Site and Landscape Context

The Project is proposed for development on approximately 24,853 acre site, consisting of private-fee and State of Wyoming-owned lands located in Platte and Goshen Counties. The Project boundary is approximately 5 miles east of the Town of Chugwater and 21 miles west of the Town of Hawk Springs. The site is located atop a plateau, or flats, situated above the Town of Chugwater. The Project site is 5,331 feet amsl and State Highway 25 is located approximately 2 miles west of the Project. Within the broader regional context, the Project site is situated in a landscape that ranges from gently rolling to flat with low-growing grasses and cultivated farmlands. This area does not contain areas of identified statewide scenic significance or regional focal points.

The Project site is used for ranching with most activities centering on cattle grazing or crop cultivation. The landscape is sparsely vegetated, with wheat fields, grass fields, and plowed (fallow) fields alternately in evidence throughout which is typical of landscapes in the surrounding region. Existing developed features on the Project site include unpaved access roads, barbed-wire fencing, and electric transmission and distribution lines. Although the land on the Project site now consists of open range- and croplands that contain no wind power development, the surrounding region is one in which wind power facilities are becoming a common sight. The Project site is located southeast of Rolling Hills and Glenrock projects, east of Medicine Bow, High Plains and McFadden, and north of Happy Jack and Silver Sage wind farms. At this time, there are no WTGs located in Platte County. The Project vicinity does not contain areas of identified statewide scenic significance or regional focal points.

As a part of the process of evaluating the visual sensitivity of views, a review was made of the plans, regulations, ordinances, and design standards adopted by each of the jurisdictions in which the Project would be located to identify any provisions that designate specific landscape areas or features as scenic resources deserving of special protection. No adopted state, county, or municipal planning documents limit or restrict the amount of visual alteration that may occur on state- or privately-owned fee lands in the Project area, nor is the Project located within a protected viewshed. There are no designated scenic byways within or near the Project site.

6.11.3.2 Current View from Town of Chugwater

Currently, many residences cannot see the flats area in which the project will be constructed due to tall trees, silos, and other residences as illustrated in Figure 6-3 and Figure 6-4 below.

The majority of the residences in the town of Chugwater face East as illustrated in Figure 6-4 below. The project area is located North East of Chugwater and thus many of the residences do not directly face the project.

Figure 6-3 View of Flats from Town of Chugwater

Figure 6-3 Pre-construction view of the flats from 5th Street in the Town of Chugwater looking East. Much of the view of the flats is obstructed by trees and silos.

Figure 6-4 Current View from Town of Chugwater

Figure 6-4 Pre-construction view of the flats from 5th Street in the Town of Chugwater looking East. Much of the view of the flats is obstructed by residences.

6.11.4 Project Appearance

6.11.4.1 Project Construction

As described in Section 3, 116 turbines are proposed for construction in Phase I of the Project. The construction period for all phases of the Project are anticipated to commence Second Quarter of 2010 and be completed by the December 2012.

Primary construction activity will be associated with the site civil work to build the access roads, followed by the wind turbine foundation, erection, and commissioning. There will be two staging areas; one will be located within the SW1⁄4 of Section 36, Township 22 North, and Range 66 West within the project boundary, and the second one may be located in the Town of Chugwater.

During that time, large earth moving equipment, trucks, cranes, and other heavy equipment will be in use on the Project site and within the proposed corridors for both the access roads and transmission line and temporary staging yards.

At some times, small, localized clouds of dust created by road building and other grading activities may be visible at the site, although active dust suppression should minimize the frequency of such dust events. Because of the construction-related grading activities, areas of exposed soil and fresh gravel that contrasts with the colors of the surrounding undisturbed landscape may be visible. Any visible construction activities would be relatively short in duration, and would not result in any substantial, permanent impact to visual resources. As such, construction-related impacts are not discussed any further in this analysis.

6.11.4.2 Project Operation

The specifications of the Project features are described in detail in Section 2.0. The Project's most visible features will be the 116 wind turbines. Each turbine would be constructed with a hub height of up to 80 meters and a rotor diameter of up to 101 meters. The turbines would be arranged as array strings along permanent unpaved access roads. The Project will also consist of the following appurtenant infrastructure: power collection system including 34.5 kV buried collector lines, one step-up substation; a 230 kV transmission line; an operation and maintenance (O&M) facility; lay down yards; up to six permanent 80- meter meteorological towers; and unpaved maintenance roads.

The power collector system will collect energy generated at low to medium voltage from each WTG, transform it to 34.5 kV through a pad-mounted transformer, and deliver the power through a network of mostly underground electrical conductors. One step-up substation will be constructed to transform energy delivered by the collector systems from 34.5 kV to 230 kV. In addition, approximately 2 miles of new 230 kV transmission line will be constructed to deliver the electricity. Lastly, a step-up transformer will be installed at the base of each WTG to increase the output voltage of the WTG to the voltage of the power collection system (34.5 kV). Small concrete slab or fiberglass foundations, a concrete vault, or another suitable base will be used to support the step-up transformers.

The 34.5 kV collection system will be buried underground and within or parallel to the unpaved access roads. Portions of the collector system may be above ground in areas of large gullies and washes or other environmentally sensitive areas. Lastly, the two permanent meteorological towers will be used to collect wind data on a continuous basis.

To respond to the Federal Aviation Administration's (FAA) aircraft safety lighting

requirements, the Project will be marked in accordance with the FAA rules for lighting wind turbines that were adopted in 2007. These rules do not require daytime lighting if the towers are bright white or off white in color. For nighttime marking, the FAA requires lights that flash red at 2,000 candelas. The exact number of turbines that will require lighting will be specified by the FAA after it has reviewed final Project plans; however, the current rules specify that warning lights be mounted on the first and last turbines of each string, and every 1/2 mile on the turbines in between. The nighttime warning lights are designed to concentrate the beam in the horizontal plane, thus minimizing light diffusion down toward the ground and up toward the sky. Aside from any required aircraft warning lights, the turbines will not be illuminated at night. The lighting at the Project substation and O&M facility will be the minimum required for safety and security, and all light fixtures will be hooded and directed to prevent light from shining into the sky or into areas outside of the substation site.

6.11.4.3 Project Decommissioning

As described in Section 3.11 Site Decommissioning, the Project's operational period is assumed to be 20 years or more. Upon the Project reaching the end of its useful life, the Project owner will either make plans to upgrade or replace the equipment to extend the Project's operating life, or make plans to remove the Project. Upon decommissioning, all visible Project features will be removed and the surface of the site will be restored. As a consequence, after decommissioning, there will be essentially no lasting visual impact of any significance.

6.11.5 Project Impacts

6.11.5.1 Visual Impact

The greatest concentration of nearby viewers will be residents in the Town of Chugwater, which in 2008 had a population of 221 people. The majority of the homes in the Town of Chugwater are oriented along an East-West axis. The Project is located to the North East of the Town of Chugwater and thus the majority of the homes are not directly facing the project. The closest strings of turbines in Phase I will be approximately 6.6 miles from the North Eastern edge of town. Due to this great distance, visual impacts from the project should be minimal and partially obstructed.

Although the turbines have the potential to be visible in much of the surrounding area, the extent to which the turbines would be noticeable and would have the potential to affect the view would be greatly influenced by distance. Studies of the visibility of wind turbines structures suggest that structures in the size range proposed for this project have the greatest potential to be visually dominant within a radius of about two miles from the strucutures, and that the degree of

perceived visual dominance tapers off to a moderate level after about 3.8 miles and a low level after about 9.3 miles (CPRW, 1996). Thus, the residents in the Town of Chugwater should have minimal visual impacts due to the project.

There is a very low population density of full-time residents living within the project boundaries. Visual impact to these residents due to the Project will likely impact only those who live closest to the turbines, with the majority of these residents holding wind farm development leases either with Novelution Wind, LLC or other wind development firms.

6.11.5.2 Night Lighting

The Project would create new sources of nighttime lighting. The Project would add nighttime turbine marking lights that will be required for some of the turbines by FAA rules, and the lighting associated with the substation and O&M facility. The lighting at the Project substation and O&M facility will be the minimum required for safety and security, and all light fixtures will be shielded and aimed downward to prevent light from being cast into the sky and from projecting outward. The substation will be located well within the boundaries of the large Project site far from surrounding roadways and the homes of non-participating land owners, there will be little potential for the lighting at the substations to be noticed by or to adversely affect sensitive offsite viewers. To minimize any effects on nighttime views from State Highway 25, any lighting required at the substation and O&M facility will be the minimum needed for operation and safety. The Project will make use of heavily shielded fixtures that will be aimed downward and into the facility to assure that this lighting does not produce glare that would adversely affect motorists, and that there is no light spill into areas outside of the substation's fenced area.

The Project site and immediately surrounding area are dark at night. The flashing red lights will introduce a new element into the Project area's nighttime environment. Because the nighttime aircraft safety lights will be limited in number, red, and highly directional, their potential to create sky glow or backscatter will be minimal. Experience at other wind power facilities indicates that the flashing red nighttime aviation safety lights have the greatest potential to be visible in areas within one mile of the site. There are several residential dwellings within 1.0 mile of the Project area. Except for travelers on State Highway 25, most potential viewers of the Project will be located in areas where the small points of flashing red light will be detectable by viewers but will not dominate the views.

6.11.6 Construction and Operations Visual Impact Assessment

Visual impacts resulting from construction and operation of the proposed Project

would consist of the alteration of the presently open grazing land and farmland landscape to an open grazing land and farmland landscape in which large wind turbines will also be visible. While the turbines would be noticeable features along the skyline and would introduce a vertical patterning into the landscape composition, the distance between viewers and the turbines would in many cases attenuate the effect of their presence in these views.

The visual changes the Project would create are evaluated below in light of the criteria established by the National Research Council (NRC, 2007). This enables an assessment to be made of the extent to which the Project's visual effects would create impacts deemed substantial.

- Is the Project located within an area of identified scenic or cultural significance?

  The Project site and surrounding area have not been identified in any adopted state or local plans as being of special scenic or cultural significance. The Project site does not affect the Oregon Trail, which is a historic route of cultural significance that crosses northern Platte County.

- Would the Project significantly degrade views or scenic resources of statewide significance?

  The Project area would not degrade views or scenic resources of statewide significance. Views toward the Project site from the surrounding area do not encompass views toward scenic resources of identified statewide significance; therefore, the Project will not have adverse effects on such views.

- Is the Project on or close to a natural or cultural landscape feature that is a regional focal point?

  Views toward the Project site from the surrounding area do not encompass views of landscape features that are regional focal points; therefore, the Project will not have adverse effects on views toward regional focal points.

- Is the Project in a landscape area that is visually distinct and rare or unique?

  The Project site is in a landscape area that is typical of this region of Wyoming and has been modified by decades of ranching and crop cultivation; thus the Project will not have adverse effects on a landscape area that is rare or unique.

- Is the Project unreasonably close to any residences that would be severely affected, especially as a result of noise, shadow flicker, or being completely surrounded by wind turbines?

No residences or non-participating properties lie any closer than the recommendations set forth by the American Wind Energy Association (AWEA): (taken from AWEA FAQ http://www.awea.org/faq/wwt_environment.html#ShadowFlicker)

> **Visual impacts** can be minimized through careful design of a wind power plant. Using turbines of the same size and type and spacing them uniformly generally results in a wind plant that satisfies most aesthetic concerns. Public opinion polls show that the vast majority of people favor wind energy, and support for wind plants often increases after they are actually installed and operating.
>
> **Noise** was an issue with some early wind turbine designs, but it has been largely eliminated as a problem through improved engineering and through appropriate use of setbacks from nearby residences. Aerodynamic noise has been reduced by changing the thickness of the blades' trailing edges and by making machines "upwind" rather than "downwind" so that the wind hits the rotor blades first, then the tower (on downwind designs where the wind hits the tower first, its "shadow" can cause a thumping noise each time a blade passes behind the tower). A small amount of noise is generated by the mechanical components of the turbine. To put this into perspective, a wind turbine 300 meters away is no noisier than the reading room of a library.
>
> **Shadow Flicker** is occasionally raised as an issue by close neighbors of wind farm projects. A wind turbine's moving blades can cast a moving shadow on a nearby residence, depending on the time of the year (which determines how low the sun is in the sky) and time of day. Normally, it should not be a problem in the U.S., because at U.S. latitudes (except in Alaska) the sun's angle is not very low in the sky, and the appropriate setback for noise (see above) will be sufficient to prevent shadow flicker problems.

CFEP has planned a setback buffer of a minimum of 1000 feet from any residential buildings, which is well within the guidelines recommended by AWEA.

6.12 Vegetation, Special Status Plants, and Rare Plant Communities

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which

evaluations, plans and approvals shall cover other relevant areas.

6.12.1 Regulatory Jurisdiction

Special-status plant species are recognized by federal, state, or other agencies for their rarity or vulnerability to various causes of habitat loss or population decline and are recognized. Some of these species receive specific protection defined by federal or state endangered species legislation. “Species of concern” is an informal term that refers to those species that federal agencies believe might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of threats. Only periodic monitoring may be needed of populations and threats to the species and its habitat. At the other extreme, a species may need to be listed as a federal threatened or endangered species. “Species of concern” receive no legal protection, and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species under the Endangered Species Act (ESA).

Endangered Species Act—Plants

The ESA establishes broad prohibitions against “taking” endangered or threatened plant species. It is important to note that this prohibition does not extend to plants on federal lands; however, by statute, it is illegal to “remove or reduce to possession” or “maliciously damage or destroy” threatened or endangered plants. Furthermore, protection for listed plants is significantly weaker on private lands, where it is illegal to “remove, cut, dig up, or damage or destroy” plants only when it is “in knowing violation of any state law or in the course of any violation of state criminal trespass law.” Stated another way, there are no federal prohibitions under the ESA for the take of listed plants on federal or nonfederal lands, unless taking of those plants is in violation of state law. There are no state laws in Wyoming that prohibit the take of plants.

6.12.2 Vegetation

The Project area is within the High Plains (Level III) ecoregion, which is found in portions of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, Texas, and Wyoming. Much of the Western High Plains comprises smooth to slightly irregular plains having a high percentage of cropland. Grama-buffalo grass is the potential natural vegetation in this region as compared to mostly wheatgrass-needlegrass to the north, Trans-Pecos shrub savanna to the south, and taller grasses to the east. The northern boundary of this ecological region is also the approximate northern limit of winter wheat and sorghum and the southern limit of spring wheat. Within the High Plains ecoregion, the Project is located in the Flat to Rolling Cropland (Level IV) ecoregion. The plains of the Flat to Rolling Cropland ecoregion are more level and less dissected than in the adjacent Moderate Relief Rangeland (25c). Soils are generally silty and loamy and in

Wyoming they are similar to soils in Ecoregion 25c. Dryland farming with areas of irrigated cropland agriculture are extensive throughout the ecoregion. Winter wheat is the main cash crop, with smaller acreage in forage crops (USGS, 2009; Vegetation Map in **Appendix E**).

6.12.3 Federally Listed Plant Species

The USFWS reports three federally listed plant species as potentially occurring in Platte County (USFWS correspondence, 2009): blowout penstemon (*Penstemon haydenii*) and Ute ladies'- tresses orchid (*Spiranthes diluvialis*) and Colorado butterfly plant (*Gaura neomexicana coloradensis*). Platte River species (5 species) are federally listed Endangered/Threatened plants that occur in downstream reaches of the North Platte River system in other states; however, water use for the Project is minimal and will not affect flows in the river system or these downstream species.

6.12.3.1 Blowout Penstemon

Blowout penstemon is listed as Endangered under the ESA. It is a perennial herb, less than 12 inches (30.5 cm) high, with bluish to pale lavender flowers. It grows in active sand dune habitats and is only known to occur in northwest Carbon County. There are no records of blowout penstemon in Platte County; however, surveys to identify potential habitat for the species were completed by Terracon Consultants, Inc. Suitable habitats for the Blowout penstemon, such as sand dunes or blowouts were not observed on the site.

6.12.3.2 Ute Ladies'-tresses Orchid

Ute ladies'-tresses orchid is listed as Threatened under the ESA. This plant grows in open, moist habitats near perennial streams and rivers that are subject to periodic flooding. The flowering period is late July to early August, however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October. In Wyoming, Ute ladies'-tresses orchid is found in wet, alkaline meadows on the banks or in oxbows of perennial streams. Habitats are open and often dominated by grasses. Habitat is maintained by periodic flooding, grazing, or mowing. Threats to the species come from use of herbicides, overgrazing, mowing at critical times in the plant lifecycle, and loss of habitat to development or water management actions (Fertig and Heidel, 2007). There were no observations of Ute ladies'-tresses orchid within the Project area during Terracon's field reconnaissance. Also, based on the historic and current land use of the site, and lack of suitable habitat, the occurrence of the Ute ladies'-tresses orchid on the site is considered unlikely.

6.12.3.3 Colorado Butterfly plant

The Colorado butterfly plant is a perennial herb endemic to moist soils in wet meadows of flood plain areas in southeastern Wyoming and north-central Colorado. Designated critical habitat for the Colorado butterfly plant, such as the specific wet meadows and riparian areas in Platte County do not occur on the site. The nearest designated critical habitat for this species is located along Teepee Ring Creek approximately 12 miles west of the site. However, several small wet meadows and isolated, potential wetlands were observed on the site. During the site reconnaissance, the habitat in and surrounding the wet meadows and isolated, potential wetlands were observed for the presence of the Colorado butterfly plant. The Colorado butterfly plant was not observed on the site. A similar species, Scarlet bee blossom (*Gaura coccinea*) was observed on the site and photographs of this species were submitted for confirmation to USFWS botanists. Two USFWS botanists confirmed the presence of the Scarlet bee blossom and the absence of the Colorado butterfly plant on the site. The presence of the Colorado butterfly plant on the site is considered unlikely (Terracon, 2009).

6.12.4 Rare Plant Communities

Rare plant communities are those that are considered rare in the region, support sensitive species of plants and animals, or are subject to regulatory protection through various federal, state, or local policies or regulations. These communities may or may not contain special-status plants. In addition, there are no threatened or endangered plant species documented within the Project area (Terracon, 2009).

6.12.5 Construction Impacts

A review of publicly available data did not identify the occurrence of any rare vegetation communities or federally-listed plant species in the area of site influence. The lack of habitat for Ute ladies'-tresses, Blowout penstemon, and Colorado butterfly plant precludes impact to populations in the Project area. Construction will not be utilizing surface or groundwater at the construction site so there will be no increase water depletions in the North Platte River System. Therefore, there are no anticipated construction impacts to rare vegetation communities or special status plant species in the area of site influence.

6.12.6 Operation Impacts

Operation of the Project will not result in any impacts to rare vegetation communities or federally listed plant species. The lack of habitat for Ute ladies'-tresses, Blowout penstemon, and Colorado butterfly plant precludes populations from becoming established in the Project area. The O & M building will consume

a small quantity of water from a permitted source and will not affect Platte River species. Therefore, no long-term impacts to rare plants communities or special status plant species in the areas of site influence are expected.

6.13 Wildlife

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

This section identifies wildlife species known to occur or that potentially occur within the area of site influence. The State of Wyoming has jurisdiction over all wildlife in the state, placing species under management of the WGFD or the state Department of Agriculture. The WGFD is responsible for oversight of big game species, nongame species, and small game species that are nonmigratory.

The USFWS has oversight of migratory bird species, whether they are hunted (e.g., waterfowl) or not (e.g., passerine species), bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos)*, and all species listed under the ESA as Threatened, Endangered, or Candidate species. Some of the species groups under USFWS regulations also receive management and protection under state statutes and regulations.

6.13.1 Big Game

Through review of big game ranges and in consultation with WGFD, it was determined that T20N R65W Section 16 and T22N R65W Sections 27 and 28 are within big game crucial winter ranges. Following BMP's as set forth by WGFD, T20N R65W Section 16 is no longer planned for wind development. Sections 27 and 28 are near or within Project boundaries, however these two sections are not currently leased for wind development. The lands leased for Project development contain no crucial winter yearlong ranges, migratory routes, or parturition areas.

Pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) were both incidentally observed during wildlife surveys by Western Ecosystems Technology and Terracon in 2009 (Comprehensive Reports - **Appendix G**).

Big game utilize the Project area, but do not rely on the area for critical life stages. Impacts to big game during Project construction activities may include temporary displacement to surrounding similar habitats, which would be considered insignificant at the population level. Operational impacts to big game would include loss of habitat associated with permanent Project features; however, this too would be small and insignificant at the population level. Therefore, no monitoring or timing stipulations pertaining to big game crucial range were recommended by WGFD.

6.13.2 Avifauna

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

6.13.2.1 Regulatory Jurisdiction

Migratory passerine birds and raptor species are protected from being taken by implementing acts and federal policies. The acts and policies that currently protect migratory birds and raptors are detailed below. There are currently no other applicable federal laws that address avian species in the Project area.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) offers protection to 836 species of migratory birds (listed in 50 CFR 10.13), including waterfowl, shorebirds, seabirds, wading birds, raptors,and passerines. Generally speaking, the MBTA protects all birds in the United States, except gallinaceous (upland game) birds, rock pigeons, Eurasian collared doves, European starlings, and house sparrows.

The MBTA implements various treaties and conventions between the United States and Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Unless permitted by regulation, the MBTA provides that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, carried, or received, any migratory bird, part, nest, egg, or product, manufactured or not.

According to the MBTA, a person, association, partnership, or corporation that violates the act or its regulations is guilty of a misdemeanor and subject to a fine of up to $500, jail up to 6 months, or both. Anyone who knowingly takes a migratory bird and intends to, offers to, or actually sells or barters the bird is guilty of a felony, with fines up to $2,000, jail up to 2 years, or both. The USFWS is responsible for implementing the provisions of the MBTA, which is enforced by the USFWS Division of Law Enforcement.

Bald and Golden Eagle Protection Act

In addition to the protections afforded eagles under the MBTA, the Bald and Golden Eagle Protection Act (BGEPA) prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald eagle or golden eagle or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing. Under the BGEPA, the term *take* “includes also pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (16

USC § 668c).

The term *disturb* under the BGEPA has recently been defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (72 CFR 31332). In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

USFWS Guidance

The USFWS issued *Interim Guidance on Avoiding and Minimizing Impacts to Wildlife from Wind Turbines* on May 13, 2003. In 2004, the Director issued the *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (USFWS, 2003) memorandum to attempt to better define the intent of the 2003 Interim Guidance. At this time the October 2009 Draft, entitled, R*ecommendations for Wind Energy Development in Crucial and Important Wildlife Habitat*, provides guidance under the Wyoming Game and Fish Commission's (WGFC) Mitigation Policy (WGFC 2008) and supports the WGFC's mission of "Conserving Wildlife-Serving People".

In developing mitigation recommendations, the USFWS is guided by the Fish and Wildlife Service Mitigation Policy (46 CFR 15 [January 1981]) in evaluating modifications to or loss of habitat caused by development (WGFD, 2009). This policy follows the sequence of steps recommended in the Council on Environmental Quality's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* in seeking to avoid, minimize, or compensate for negative impacts. Per Section 1508.20 of the regulations, mitigation can involve (1) avoiding the impact of an activity by taking no action; (2) minimizing impacts by limiting the degree of activity; (3) rectifying an impact by repairing, rehabilitating, or restoring an affected environment; (4) reducing or eliminating an impact by conducting activities that preserve and maintain the resources; or (5) compensating for an impact by replacing or providing substitute resources or environments.

6.13.2.2 Avian Species Baseline Assessment

Fixed-point bird use surveys were conducted by WEST, Inc from July 1, 2009 through September 18, 2009 and are continuing through 2010. By the time studies were initiated by WEST in summer 2009, raptor nesting season had past. However, Greg Johnson, of WEST, Inc. states there is very little nesting habitat (trees) available in and around the Project area (WEST, 2009).The presence of active raptor nests will be determined in spring 2010.

The objective of the fixed-point bird use surveys was to estimate the seasonal, spatial, and temporal use of the Project area by birds, particularly raptors. According to the Summer Interim report of the survey (WEST, 2009), 527 birds in 199 groups were observed; 44 individual raptors comprising seven species were recorded.

Levels of bird use varied by point. Habitat varied by point and may have influenced the differences in bird use observed. No obvious flyways or concentration areas were observed. No strong association with topographic features within the study area was noted for raptors or other large birds. Although some differences in bird use were detected among survey points, the differences are not large enough to suggest that any portions of the Project area should be avoided when siting turbines.

Another indicator of the potential impacts on raptors is the overall level of use of the Project area by raptors. The summer and early fall 2009 raptor use was 0.98 raptors/plot/20-min survey. Annual mean raptor use was compared with 41 other wind-energy facilities that implemented similar protocols. Based on the results from other wind resource areas, a ranking of seasonal and annual raptor mean use was developed as follows:

- Low (0 to 0.5 bird/plot/20-min survey)
- Low to moderate (0.5 to 1.0 bird/plot/20-min survey)
- Moderate (1.0 to 2.0 birds/plot/20-min survey)
- High (2.0 to 3.0 birds/plot/20-min survey)
- Very high (> 3.0 birds/plot/20-min survey)

With only one season of raptor data, CFEP project area has a ranking of low to moderate relative to data collected at other existing and proposed wind energy facilities implementing similar protocols for a similar season (Figure 7. provided by WEST, 2009).

6.13.2.3 Construction Impacts

Any impacts to nesting raptors during construction will be minimized by adhering to WGFD and USFWS requested timing and distance stipulations for nesting raptors. The transmission line will be sited greater than 1⁄4 mile from any identified nest sites. Construction within 1 mile of any active raptor nests will be completed prior to February 1, and if necessary after July 15, to ensure no impact to nesting raptors. Human presence and construction activity can be expected to disrupt general avian use of the immediate construction area; however, these displacement impacts to avifauna are expected to be minimal and not significant. Additionally, CFEP will provide training to its employees to minimize their risk of disturbing nesting raptors (**Appendix H**).

Nest and impact avoidance plans were developed with input from the USFWS and WGFD guidelines to ensure that impacts to nesting raptors have been minimized or avoided to the extent practicable.

6.13.2.4 Operation Impacts

Collision

Impacts to avian species during operation will be primarily limited to collision with WTGs. Avian mortality by collision has traditionally been an issue in the siting and operation of wind-energy projects. Although avian mortality rates are dramatically lower because of advances in turbine technology and better siting decisions, avian mortality concerns remain an important issue with the WGFD and USFWS for wind project permitting in Wyoming.

Many species of songbirds migrate at night and may collide with tall human-made structures; however, no large mortality events on the same scale as those seen at communication towers have been documented at wind-energy facilities in North America (NWCC, 2004). Large numbers of songbirds have collided with lighted communication towers and buildings when foggy conditions occur during spring or fall migration. Additionally, the large mortality events observed at communication towers have occurred at structures greater than 500 ft (152 m) in height (Erickson, et al., 2001), likely because most songbirds migrate at altitudes of 900 ft (274 m) or higher (Lincoln, et al., 1998). Modern wind turbines are well below 900 ft in height. Migrating songbirds are likely more at risk of turbine collision when ascending and descending from stopover habitats. Avian studies completed in 2009 do not indicate the presence of important stopover habitat or stopover use by migrating species (**Appendix G**).

Given that passerines made up a large proportion of the birds observed during the baseline study, passerines would be expected to make up the largest proportion of fatalities. Exposure indices indicate that horned lark is the most likely passerine to be exposed to collision from wind turbines. Most non-raptors

had relatively low exposure indices because the majority of individuals fly below the likely rotor-swept area. Due to the low exposure risks, it is unlikely that non-raptor populations will be adversely affected by direct mortality from the operation of the wind-energy facility.

Passerines are generally the most abundant bird type found during fatality searches at wind-energy facilities (Erickson et al. 2001a). Raptors, however, have received much attention due to high rates of fatalities at the Altamont Pass wind-energy facility in California, which has the highest recorded overall raptor fatality rate of any wind-energy facility (Erickson et al. 2002b). Based on the results from other wind resource areas, a ranking of seasonal mean raptor use was developed as: low (0 – 0.5 raptors/800-m plot/20-min survey); low to moderate (0.5 – 1.0); moderate (1.0 – 2.0); high (2.0 – 3.0); and very high (> 3.0). Mean raptor use (number of raptors divided by the number of 800-m plots and the total number of surveys) in the CFEP area during the summer and early fall of 2009 was low to moderate (0.98 raptors/plot/20-min survey) relative to data collected at other existing and proposed wind-energy facilities that implemented similar protocols and had data for a similar season (Figure 7, provided by WEST, 2009).

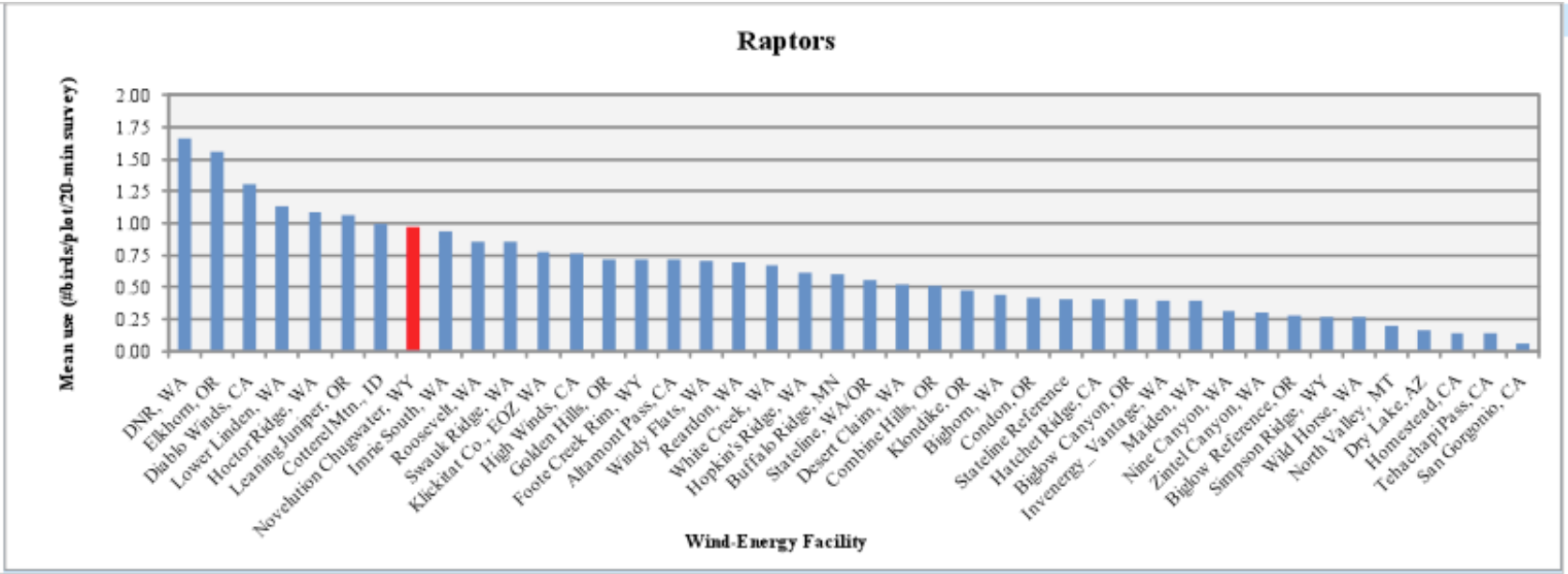


Figure 7. Comparison of summer raptor use between the Novelution Chugwater Wind Resource Area and other US wind-energy facilities.

Data from the following sources:

Novelution Chugwater, WY	This study.				
DNR, WA	Johnson et al. 2006a	White Creek, WA	NWC and WEST 2005	Simpson Ridge, WY	Johnson et al. 2000
Elkhorn, OR	WEST 2005a	Hopkin's Ridge, WA	Young et al. 2003a	Stateline Reference	URS et al. 2001
Diablo Winds, CA	WEST 2006a	Buffalo Ridge, MN	Erickson et al. 2002b	Hatchet Ridge, CA	Young et al. 2007a
Lower Linden, WA	Johnson et al. 2007a	Stateline, WA/OR	Erickson et al. 2002b	Biglow Canyon, OR	WEST 2005c
Hoctor Ridge, WA	Johnson et al. 2006b	Desert Claim, WA	Young et al. 2003b	Invenergy_Vantage, WA	WEST 2007
Leaning Juniper, OR	Kronner et al. 2005	Combine Hills, OR	Young et al. 2003c	Maiden, WA	Erickson et al. 2002b
Cotterel Mtn., ID	Cooper et al. 2004	Klondike, OR	Johnson et al. 2002	Nine Canyon, WA	Erickson et al. 2001b
Imrie, WA	Johnson et al. 2006c	Bighorn, WA	Johnson and Erickson 2004	Zintel Canyon, WA	Erickson et al. 2002a
Roosevelt, WA	NWC and WEST 2004	Condon, OR	Erickson et al. 2002b	Biglow Reference, OR	WEST 2005c
Swauk Ridge, WA	Erickson et al. 2003b	Stateline Reference	URS et al. 2001	Simpson Ridge, WY	Johnson et al. 2000
Klickitat Co., EOZ WA	WEST and NWC 2003	Hatchet Ridge, CA	Young et al. 2007a	Wild Horse, WA	Erickson et al. 2003a
High Winds, CA	Kerlinger et al. 2005	Biglow Canyon, OR	WEST 2005c	North Valley, MT	WEST 2006b
Golden Hills, OR	Jeffrey et al. 2008	Invenergy_Vantage, WA	WEST 2007	Dry Lake, AZ	Young et al. 2007b
Foote Creek Rim, WY	Erickson et al. 2002b	Maiden, WA	Erickson et al. 2002b	Homestead, CA	WEST et al. 2007
Altamont Pass, CA	Erickson et al. 2002b	Nine Canyon, WA	Erickson et al. 2001b	Tehachapi Pass, CA	Erickson et al. 2002b
Windy Flats, WA	Johnson et al. 2007b	Zintel Canyon, WA	Erickson et al. 2002a	San Gorgonio, CA	Erickson et al. 2002b
Reardon, WA	WEST 2005b	Biglow Reference, OR	WEST 2005c		

Displacement

Most studies on raptor displacement at wind-energy facilities indicate effects to be negligible (Howell and Noone, 1992; Johnson, et al., 2000, 2003a; Madders and Whitfield, 2006). Notable exceptions to this include a study in Scotland that described territorial golden eagles avoiding the entire wind-energy facility area except when intercepting non-territorial birds (Walker, et al., 2005). A study at the Buffalo Ridge wind-energy facility in Minnesota found evidence of northern harriers, a raptor species with potential to occur in the area of site influence, avoiding turbines on both a small scale (less than 328 ft [100 m] from turbines) and a larger scale in the year following construction (Johnson, et al., 2000). Two years following construction, however, no large-scale displacement of northern harriers was detected.

Avoidance of wind turbines by nesting raptors occurred at the Buffalo Ridge wind-energy facility in Minnesota, where raptor nest density on 101 square miles of land surrounding a wind-energy facility was 5.94 nests per 39 square miles. No nests were present in the 12-square-mile facility itself, even though habitat was similar (Usgaard, et al., 1997). However, this analysis assumes that raptor nests are uniformly distributed across the landscape, which is unlikely. Even though no nests were found, only two nests would be expected for an area 12 square miles in size if the nests were distributed uniformly. At a wind-energy facility in eastern Washington, based on extensive monitoring using helicopter flights and ground observations, raptors nested in the study area at approximately the same levels after construction, and several nests were located within 0.5 mile (0.8 km) of turbines (Erickson, et al., 2004). At the Foote Creek Rim Wind-Energy Facility in southern Wyoming, one pair of red-tailed hawks nested within 0.3 mile (0.5 km) of the turbine strings, and seven red-tailed hawk nests, one great horned owl nest, and one golden eagle nest located within 1 mile (1.6 km) of the wind-energy facility successfully fledged young (Johnson, et al., 2000). The golden eagle pair successfully nested 0.5 mile (0.8 km) from the facility for three different years after it became operational. A Swainson's hawk also nested within 0.25 mile (0.4 km) of a turbine string at the Klondike I wind-energy facility in Oregon after the facility was operational (Johnson, et al., 2003a). These observations suggest that there will be limited nesting displacement of raptors at the Project site, although the creation of a buffer surrounding known nests when siting turbines will further reduce adverse impacts.

Baseline data compared with existing data and conclusions gained from the study of other wind energy facilities indicate that the Project will result in no substantial impairment to bird species and the health, safety, or welfare of the present or expected bird inhabitants in the area of site influence.

Although impacts to birds are not expected to be significant or adverse, a post-construction avian (and bat) mortality-monitoring program will be implemented to identify operation impacts to birds, if any. Mortality surveys and monitoring of the

Project area will occur during construction and operation in accordance with standard industry monitoring practices acceptable to the WGFD as described in Section 7. CFEP's avian and bat protection plan is presented in **Appendix J**.

6.13.3 Greater Sage-Grouse

The State of Wyoming, as implemented by WGFD, has management authority over the greater sage-grouse within the state's borders.

6.13.3.1 Regulatory Jurisdiction

Between 1999 and 2004, eight petitions to list the greater sage-grouse as threatened or endangered were filed, and a species status review was initiated as a result. In 2005, a USFWS status review was completed, and it was determined that the greater sage-grouse was not warranted for listing as endangered or threatened. On December 4, 2007, the Federal District Court of Idaho reversed and remanded the USFWS 2005 12-month "not warranted" listing decision for the Greater Sage-Grouse as Threatened or Endangered under the ESA. Subsequently, on February 26, 2008, the USFWS announced the initiation of a status review for the greater sage-grouse. The USFWS initiated a 90-day review of best available scientific information. A new determination is anticipated in the winter of 2010 as to whether listing is warranted under the ESA.

Wyoming Governor Dave Freudenthal issued E.O. 2008-02 on August 1, 2008, directing state agencies to work to maintain and enhance greater sage-grouse habitat in Wyoming. The Executive Order does not create any new authority and legally only applies to state agencies. The recommendations spelled out in the Executive Order originated in the work of the Sage-Grouse Implementation Team. Conservation efforts target core-breeding areas for greater sage grouse and are intended to encourage and support development outside of the identified core area.

6.13.3.2 Construction Impacts

Based on a review of the Greater Sage-Grouse Core Breeding Areas Version 2 maps issued 2008-02, and consultation with the WGFD, the Project area is outside the sage-grouse core population or use areas (see Greater Sage-Grouse Map in **Appendix E** from WEST). The nearest core use area for greater sage-grouse is located west of Interstate 25 and over 40 miles (64 km) from the study area. There will be no construction impacts to Greater Sage-Grouse population.

Prairie sharptailed grouse occur in the area. Avian studies are ongoing at this time with WEST. CFEP in consultation with WGFD will apply the standard stipulation of ¼ mile buffer around known sharptailed grouse leks.

6.13.3.3 Operation Impacts

Based on CFEP's care and concern in choosing wind project locations, there will be no impacts to the Greater Sage-Grouse population.

6.13.4 Bats

Bat casualties have been reported from most wind-power facilities where post-construction fatality monitoring data are available. However, the majority of recorded fatalities in the western United States have occurred during the fall migration period and involved non-protected bat species.

6.13.4.1 Regulatory Jurisdiction

Of the 45 species of bats found in the continental United States, six are federally listed as endangered under the ESA and receive incidental take provisions. In addition, BLM sensitive bat species are recognized for their rarity or vulnerability to various causes of habitat loss or population decline and are generally recognized by federal, state, or other agencies. In Wyoming, both the BLM and USFWS maintain sensitive bat species lists. The BLM and USFWS sensitive listing does not afford the bat species protection from incidental take provisions. Thirteen bats are listed as Species of Special Concern by WGFD (2005).

6.13.4.2 Bat Species

Nine bat species may occur in the vicinity of the Project area based on range of occurrence (Adams, 2003): pallid bat (*Antrozous pallidus*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), western small-footed myotis (*Myotis ciliolabrum*), western long-eared myotis (*M. evotis*), little brown myotis (*M. lucifugus*), long-legged myotis (*M. volans*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

WEST performed bat acoustical monitoring to assess bat use within the Project area. Acoustic surveys using AnaBat® SD-1 detectors are ongoing and a report from WEST is due in January 2010.

6.13.4.3 Construction Impacts

Assessing the potential impacts of wind-energy development to bats at the Project area is complicated by the current lack of understanding of why bats die at wind turbines (Kunz, et al., 2007; Baerwald, et al., 2008), combined with the inherent difficulties of monitoring elusive, night-flying animals (O'Shea, et al., 2003). To date, monitoring studies of wind- energy facilities suggest that: (1) migratory tree-roosting species (e.g., eastern red, hoary, and silver-haired bats) comprise almost 75 percent of reported bats killed; (2) the majority of fatalities occur during the post-breeding or fall migration season (roughly August and

September); and (3) the highest reported fatalities occur at wind-energy facilities located along forested ridge tops in the eastern United States (Gruver, 2002; Johnson, et al., 2003b; Kunz, et al., 2007; Arnett, et al., 2008). Recent studies in agricultural regions of Iowa and Alberta, Canada, report relatively high fatalities as well (Jain, 2005; Baerwald, 2006).

Construction activities are not expected to coincide with the nocturnal activity of bats, nor are roost sites expected to be directly impacted. Therefore, no substantial impairment to bat species and the health, safety, or welfare of the present or expected bat inhabitants in the area of site influence is expected from construction of the Project.

6.13.4.4 Operation Impacts

Assuming that a relationship between bat activity and bat mortality exists, low levels of bat mortality can be expected to occur in the Project area. Additionally, impacts to wetland and water resources are minimal by design of the Project and will thus not directly influence foraging opportunities associated with these key resources. Therefore, no substantial impairment to bat species and the health, safety, or welfare of the present or expected bat migrants in the area of site influence is expected from the operation of the Project.

Although impacts to bats are not expected to be significant or adverse, based on consultations with the WGFD, a post-construction bat and avian mortality-monitoring program will be implemented to identify impacts to bats, if any. Mortality surveys and monitoring of the Project area will occur during operation in accordance with standard industry monitoring practices acceptable to the WGFD and USFWS and described in Section 7.

6.13.5 Federally Listed Wildlife Species

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

6.13.5.1 Regulatory Jurisdiction

Threatened and endangered wildlife species are protected under the federal ESA of 1973, as amended. Designated threatened and endangered fish and wildlife species are protected from incidental take by implementing acts and federal policies. The following details the ESA and policies that currently protect threatened and endangered species.

Endangered Species Act of 1973

Those species classified as threatened or endangered are protected under the ESA, which is enforced by the USFWS. Threatened or endangered species are considered “federally listed” or “listed” after a final rule has been published in the Federal Register. Federal candidate species, subspecies, or varieties are those plant and animal species being considered for listing as endangered or threatened but for which a proposed regulation has not yet been published in the Federal Register. Wyoming does not have an endangered species act; therefore, only those species with federal designation are protected under the ESA.

Because the Project is entirely on private or State of Wyoming Land there is no federal nexus, ESA Section 7 consultation is not required; however, Section 9 compliance may be necessary. If the construction or operation of the Project were to result in the take of an endangered species, CFEP would be in violation of the ESA.

Threatened and Endangered Species. Endangered species are those plant and animal species, subspecies, or varieties that are in danger of extinction throughout all or a significant portion of their range. The threatened category comprises plant and animal species, subspecies, or varieties likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

Candidate Species. Federal candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher-priority listing activities. Candidate species receive no statutory protection under the ESA. However, the USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA.

6.13.5.2 USFWS Threatened and Endangered Species

A review of the USFWS endangered, threatened, and candidate species for Wyoming (USFWS, 2009) was conducted to identify species listed under the ESA that have the potential to occur in Platte County. Two species are recorded as Federally Listed Endangered; the black-footed ferret (*Mustela nigripes*) and the pallid sturgeon (*Scaphirhynchus albus*) have the potential to occur within the county. The Black-footed ferret requires prairie dog towns as habitat in Platte County. In addition, the Pallid sturgeon utilizes downstream riverine habitat of the Platte River system in Platte County, Wyoming.

Water depletions and effects to water quality in the Platte River System could affect five additional federally listed wildlife species and/or their critical habitats in downstream reaches in other states. Five species (interior least tern [*Sternula antillarum*], pallid sturgeon [*Scaphirhynchus albus*], piping plover [*Charadrius melodus*], western prairie fringed orchid [*Platanthera praeclara*], and whooping crane [*Grus Americana*]) occur downstream; however, water depletions associated with Project activities, described in Section 6.6, are minimal and will have no impact on the Platte River Watershed.

6.13.5.3 Construction Impacts

No federally listed wildlife were documented during 2009 baseline wildlife surveys, bat detection surveys, and raptor nest searches (**Appendix G**). There is no potential habitat for the black-footed ferret; therefore, habitat loss through Project construction is not expected to impact the species.

Construction will use approximately 2.2 ac-ft of water from a permitted source (Town of Chugwater) and will not increase water depletions in the North Platte River System. No impacts to Platte River Species downstream of the Project area are expected. Impacts to ephemeral drainages have been limited through micrositing; therefore, impacts associated with downstream sedimentation will be minimal, if any, and not significant or adverse to federally listed species.

6.13.5.4 Operation Impacts

Because of the absence of the species and potential habitat, the black-footed ferret, along with any other federally listed species, is not expected to be present or affected by operation of the Project. Operation will consume a small quantity of water from a permitted source and will not affect Platte River species. Therefore, there will be no substantial impairment to the health, safety, or welfare of the present or expected federally listed animals potentially occurring in the area of site influence.

6.14 Aquatic Systems

Rule I Section 7(xiii)(P) – Preliminary evaluations of or plans and proposals for alleviating social, economic or environmental impacts upon local government or any special districts, which may result from the proposed facility, which evaluations, plans and approvals shall cover other relevant areas.

6.14.1 Background

One ephemeral stream, Box Elder Creek, flows into Glomill Reservoir, which is located in a closed basin that has no outlet. Hydrologic connectivity via ephemeral systems occurs primarily during annual periods of spring snowmelt and in response to dramatic precipitation events.

Ephemeral streams, by definition, do not flow all of the time and function in a state of continuous non-equilibrium. Unlike perennial streams that continuously transport sediment, sediment movement in ephemeral systems occurs only in conjunction with specific runoff events. Under natural conditions, larger scale events and associated high velocity flows can transfer relatively large amounts of coarse sediment into the watershed (Meehan, 1991).

Sediment deposition in aquatic systems is recognized widely in the literature as having varying effects to associative species. New sediment recruitment has for example been recognized as contributing to native plant germination while at the same time restricting seedling growth of non-native species such as saltcedar (*Tamarix ramosissima*). Such accounts presume movement toward improved riparian quality and quantity. Conversely, excessive sediment loading into systems may also have deleterious effects on aquatic fauna through interference with reproduction and feeding (Levick, et al., 2008).

As noted in a recent study (Levick, et al., 2008), it is not easy to identify stream stability in ephemeral systems due to their perpetual state of flux. Single cycle incision and deposition events may occur over centuries, and for any changes to be quantified, numerous cycles would have to be analyzed. Understandably, it becomes extremely difficult to understand the dynamics of aquatic resource communities in intermittent or ephemeral streams due to the irregular nature of the hydrologic regime and their high sensitivity to climatic fluctuations.

Ephemeral streams are known to support diverse assemblages of macro-invertebrates (Grimm and Fisher, 1989). Additionally, ephemeral streams have been recognized (Cummins and Wilzbach, 2005) to indirectly support fish populations in perennial systems through the delivery of nutrients and macro-invertebrates. Hydrologic connectivity is required for many invertebrates to facilitate spatial distribution, even if it occurs only intermittently (Nadeau and Rains, 2007).

The management of ephemeral stream networks can have a direct impact on the hydrology and geomorphology of the overall drainage (Bull, 1997). Road construction and maintenance when not implemented properly have the potential to deleteriously affect hillslope drainage processes, and shift naturally occurring hydrologic regimes. This can exacerbate concerns surrounding erosion and sedimentation into nearby perennial reaches (USDA, 2002). Effective management of such systems requires a watershed-based approach, involving preservation of riparian vegetation and channel connectivity which translates to preserved ecosystem function in the drainage.

6.14.2 Regulatory Jurisdiction

As outlined in the above Section 6.7, water quality concerns associated with construction of the Project fall under the direct jurisdiction of WDEQ. Although some ephemeral systems have been recognized as providing temporary habitat for fish, no known populations or individuals have been documented as occurring in Box Elder Creek in or near the Project area. In turn, no federally listed or state sensitive fish species occur within the Project area.

6.14.3 Construction Impacts

As with all ground disturbing activities in highly erosive environments, the concern for sediment transport is primary for aquatic resources. As no fisheries occur within the Project area (including Box Elder Creek), no direct or indirect effects to fisheries would occur as a result of the proposed Project construction. Any potential effects to other aquatic resources, such as macro-invertebrates, in the Project area would be mitigated through proposed BMPs, as outlined in Section 7. These include design of roads and culverts to minimize erosion and sediment transport, revegetation of all disturbed areas to at least pre-project conditions using native vegetation, implementing erosion retention measures in all areas where the potential for sediment transport occurs, and monitoring of the Project Area to ensure that mitigation measures have successfully addressed any concerns associated with increased erosion and/or sediment transport, as well as retaining natural connectivity in the system.

No effects to fisheries or aquatic resources in the North Platte River are anticipated to occur as a result of construction of the proposed Project. Primary concerns, relative to aquatic resources, would be associated with the construction of new roads and culverts, as well as the preservation of riparian vegetation, wetlands, and system connectivity. No effects to riparian vegetation or wetlands would occur. Additionally, connectivity in the systems will remain intact. Any ephemeral stream crossings that are proposed will be implemented under specified BMPs (described in Section 7) and constructed using culverts designed to carry 50-year flood events at minimum. Any potential impacts to aquatic resources from erosion and sedimentation associated with construction

activities (including roads and culverts) will be reduced by measures implemented to control runoff during construction and operation of the project as outlined in the SWPPP (refer to SWPPP Section 2, Stormwater Pollution Prevention), as well as additional BMPs. Any potential concerns associated with hazardous materials will be managed and controlled in accordance with federal and state regulations to prevent the release of petroleum products to surface waters (refer to SWPPP Section 3, Spill Prevention, Control, and Countermeasure Plans).

Unavoidable impacts would remain after mitigation because any groundbreaking activity, no matter how benign, would, by its very nature, increase the risk of erosion and sediment loading in surface water processes until natural vegetation has re-established itself to pre- project conditions. Due to extensive mitigation of potential effects from the proposed construction activities, the ephemeral stream, Box Elder Creek, in the Project Area, and possibly the North Platte River, would remain at an insignificant risk of altered sediment loading as a result of the proposed Project. Therefore, construction of the Project will avoid significant impacts that may impair the health, safety, or welfare of the resource or the health, safety, or welfare of the present or expected aquatic resources in the area of site influence.

In the statement from WGFD (**Appendix D**) regarding **Aquatic Considerations**:

> If the project is designed such that no runoff occurs to the west toward Chugwater Creek, we do not anticipate the need to conduct geomorphological monitoring of Chugwater Creek. To the best of our knowledge, it appears that Boxelder Creek is a closed system, i.e. does not connect to perennial water that contains fish. Therefore, wedo not anticipate the need to monitor culverts and 5%or greater roads.

In the statement from WGFD (**Appendix D**) regarding **Reptiles and Amphibians:**

> As the location of the roads and towers become known, we recommend that Novelution Wind contact the Department to discuss the specific monitoring protocols for reptiles and amphibians.

6.14.4 Operations Impacts

No ground breaking activity or in stream activity would occur during operation and management of the proposed Project. In turn, no indirect and/or direct effects are anticipated to occur in association with continued operation and maintenance of the proposed project. Therefore, operation of the Project will avoid significant impacts that may impair the health, safety, or welfare of the resource or the health, safety, or welfare of the present or expected aquatic resources in the area of site influence.

6.15 Cumulative Impacts

Rule I Section 7(j) – Cumulative Impacts. Cumulative impacts of the proposed industrial facility and other projects in the area of site influence should be addressed separately.

The cumulative impacts analysis is organized by resource to provide better presentation of cumulative impacts. Potential direct and indirect impacts were analyzed in this ISA application. The environmental impacts evaluation of the Project indicated that, although the construction and operation impacts would not result in significant or adverse resource impacts, minor impacts could occur to some resources; therefore, a cumulative impacts assessment was completed to determine if the minor impacts of the Project could, along with other actions in the area of site influence under the jurisdiction of the Industrial Siting Division, contribute to a significant or adverse cumulative impact.

6.15.1 Approach to Cumulative Impacts Analysis

The ISA lacks issuing guidance that defines or details requisite cumulative impact analysis methodology. Therefore, the Council on Environmental Quality (CEQ) was queried to identify cumulative impact methodology and guidance (CEQ, 1997).

Based on a review of CEQ guidance, the following factors were considered for the Project.

* The direct and indirect impacts of the Proposed project
* Which resources, ecosystems, and human communities are affected?
* Which impacts to these resources are important from a cumulative perspective?

Based on additional CEQ guidance, cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions. Cumulative impacts would occur if incremental impacts of the Project, added to the environmental impacts of past, present, and reasonably foreseeable future actions, would result in adverse impacts to regional resources. Cumulative impacts could only occur for those resources that are affected by the Project and by other actions whose impacts occur within the same timeframe.

6.15.2 Geographic Scope of Cumulative Analysis

Cumulative environmental impacts, as defined in the ISA Rules and Regulations, means the combined impacts upon the environment to the social or economic conditions resulting from construction and operation of the proposed industrial facility and from construction and operation of other ongoing or proposed developments in the area of site influence.

Proposed developments to be included in cumulative impacts include those developments that are actively planning and have public information available or may be actively permitting under the auspices of the Wyoming ISA. Therefore, the geographic scope of cumulative impacts analysis is generally based on the area of site influence of each resource.

6.15.3 Timeframe

Potential impacts from the construction of the Project would be relatively short-term, generally occurring over the total three-year construction period for all Phases. However, impacts to soils, air quality, vegetation, and noxious weeds may extend several months beyond the initial construction period until re-vegetation is accomplished. For the purposes of the cumulative impacts analysis, it is assumed that operation of CFEP would begin in January 2011.

Potential impacts associated with operation of the proposed Project and transmission line would continue into the foreseeable future, approximately 20 years.

6.15.4 Past, Present, and Reasonably Foreseeable Actions

It is of relative importance to note that portions of the land within Platte and Goshen County are under the jurisdiction of federal government and the State of Wyoming. Federally owned lands fall under the jurisdiction of the BLM or the Forest Service, and NEPA compliance is required for most project actions. Additionally, State of Wyoming lands are managed by the Office of State Lands and Investments for revenues directed into the Wyoming State Land Trust. As such, a Special Use Lease is required from the Board of Land Commissioners to develop industrial facilities on State of Wyoming lands. Therefore, each of these governmental entities have specific planning processes and implementing rules that require evaluation prior to construction and operation industrial projects on fee, State, and Federal lands in the area of site influence.

In evaluating the cumulative impacts of other projects at and around the Project site, the project team considered relevant historical events in the region and present and reasonably foreseeable future actions under the jurisdiction of the ISA.

Some of the past, present, and reasonably foreseeable activities affecting Platte and Goshen County land resources include, the following, some of which are under the jurisdiction of the ISA:

- Oil exploration and extraction
- Natural gas exploration and extraction
- Pipeline construction
- Electric transmission line construction
- Wind power generation projects
- Coal gasification
- Uranium exploration and extraction

6.15.4.1 Wyoming Industrial Development Information and Siting Act Projects Considered

Discussions with Dan Brecht of Platte County Economic Development, Lisa Johnson with Goshen County Economic Development along with discussions with a member of the Industrial Siting Council have stated that here are no recent or planned projects large enough to initiate an Industrial Siting Application.

6.15.5 Cumulative Impacts

Construction of the Project along with no current or planned projects in the area indicates that there will be no cumulative impacts.

6.15.5.1 Air Quality

Air quality in the cumulative impact area is generally good, and the area is not in violation of any National Ambient Air Quality Standards (NAAQS). At the onset of the CFEP Project, no simultaneous project construction activities would incrementally increase local impacts to air quality from fugitive dust emissions from truck traffic.

6.15.5.2 Noise

The area for potential cumulative noise impacts is the Project area boundary and extending 1-mile buffer. Existing sound disturbances within the Project area are limited to those associated with ranching activities, farming activities, and traffic on WYO 314. Noise generated by onsite construction activities should not reach the nearest residential areas, and thus will have no cumulative impact on typical

background levels. Operational noise associated with the Project also will not significantly impact nearby residential areas and no cumulative effect would occur to the residents in the area of site influence.

6.15.5.3 Soils and Geologic Hazards

There will be localized disturbance of soils associated with construction of facilities at turbine sites and access roads, and along the proposed transmission line alignment. These impacts will be minimized by mitigation measures designed to guard against erosion. The Project will be designed and constructed to avoid or minimize impacts, and mitigation measures will be implemented in order to alleviate potential impacts. No other foreseeable action will contribute to cumulative impacts on soil resources or geologic hazards within the Project site. Cumulative impacts to soil/geologic resources or seismic characteristics from construction or operation of the Project are not expected to be significant.

6.15.5.4 Cultural Resources

The Project layout has been designed to avoid impacts to known cultural resources listed under the NRHP. Therefore, implementation of this Project would not contribute to any regional cumulative impacts to cultural resources.

6.15.5.5 Surface and Groundwater

Water will be obtained from sources that have an existing senior water right that will not adversely impact the North Platte River. Additionally, construction activities are not anticipated to discharge into surface waters. Existing and future development, livestock grazing, and transportation corridors all contribute to cumulative impacts on surface water through some level of increased sedimentation.

After the Project is operational, minimal quantities of water will be needed at the O&M Building. Implementation of mitigation measures to control runoff during construction and operation of the Project will prevent significant impacts to surface waters from erosion and sedimentation. In addition, implementation of BMPs for handling, storage, and use of hazardous materials and adherence to applicable permits during construction and operation of the Project will prevent significant cumulative impacts on surface and groundwater resources. Due to the negligible impacts associated with this Project, water quality and quantity impacts are not expected to contribute to any significant impacts on a cumulative scale.

6.15.5.6 Land Use and Recreation

Appropriate planning and evaluation to address cumulative impacts is conducted by the State of Wyoming through the Industrial Siting Application to ensure that the proposed Project is compatible with ongoing activities and land uses. The

Projects' contributions to cumulative impacts on land use would be small or negligible unless a significant permanent, uncompensated loss of the current productive use of a site occurred or if future uses were precluded. Land in the Project area is used as rangeland for livestock grazing, farming, and limited hunting opportunity. The Project would generally be compatible with the aforementioned uses, which may be only slightly affected in the immediate vicinity of Project infrastructure.

The Project will be constructed and operated in accordance with county land use and building requirements; therefore, the Project will cause no significant cumulative impacts that are detrimental to established uses of the surrounding area. The minimal incremental increase in visitation and use of regional recreational areas during construction of the Project is not anticipated to impact recreational use cumulatively. The small number of workers at the Project area at any one time is not likely to increase cumulative impacts to land use and recreation.

6.15.5.7 Wetlands and Waters of the United States

Wind energy projects have the ability to locate major project features to avoid or significantly reduce potential impacts to jurisdictional waters of the United States and wetlands. No adverse impacts to wetland and water bodies are anticipated from construction or operation of the Project. Therefore, implementation of the Project will not impact jurisdictional waters of the United States and will not contribute to cumulative impacts to these jurisdictional features.

6.15.5.8 Scenic Quality

The cumulative visual impact analysis considers all of the existing and reasonably foreseeable wind energy projects in Platte and Goshen Counties. There are meteorological towers within and around the Project area. Winds are being monitored by other companies and have been for several years, however, at the time of this Industrial Siting Application there are currently no other wind energy projects in the area. The baseline condition for this cumulative visual analysis includes only the project under development by CFEP.

Baseline Condition

The Project will introduce 116 WTGs in Phase I, Phase II has the potential to introduce an additional 370 WTGs, and the final phase has the potential to introduce another 314 WTGs. This is a total of up to 800 WTGs spread over an area of approximately 24,000 acres.

In general, this primary baseline wind energy facility would produce localized visual changes. Visual impacts resulting from the proposed Project consist of the alteration of the previously gently rolling grazing land and farmland landscape to

a gently rolling grazing land and farmland landscape in which large wind turbines are visible. While the turbines are noticeable features along the skyline and would introduce a vertical patterning into the landscape composition, their presence in these locations is in many cases attenuated by the distance between viewers and the turbines and the screening provided by topographic variations. Studies of the visibility of wind turbine structures suggest that structures in the size range of those proposed for this Project have the greatest potential to be visually dominant within a distance of about two miles from the structures. That degree of perceived visual dominance tapers off to a moderate level after about 7.5 miles and a low level after about 13.6 miles (CPRW, 1996).

Cumulative Visual Impacts

The cumulative visual analysis focuses on sensitive viewpoint receptors. In general, high viewer sensitivity exists when there are many viewers who have a frequent view or a view of a project for a long duration, as well as those viewers who are likely to be very aware of and concerned about the view. This region of Platte and Goshen Counties has low population density, with the majority of residents living in the town of Chugwater.

The proposed Project would produce a change in the visual character of the existing landscape. The Project would introduce views of turbines in the Town of Chugwater. No turbines would be located closer than 1.7 miles to Interstate 25. The majority of residents in the Town of Chugwater would not be located closer than 4.5 miles from the proposed turbines. The turbines would be most visible to rural residents of Chugwater Flats area and along State Highway 314 where the highway passes through the Project site. The closest turbine would be no less than 1000 feet from the highway. From this distance, turbines would be a noticeable visual element in views from the highway.

To emphasize, the degree to which the turbines would dominate these views is dependent upon the distance from which they are viewed. The proposed turbines have the greatest potential to be visually dominant within a radius of about two miles from the structures the degree of perceived visual dominance tapers off to a moderate level after about 3.8 miles and a low level after about 9.3 miles (CPRW 1996).

6.15.5.9 Vegetation, Special Status Plants, and Rare Vegetation Communities

No rare or unique vegetative communities are documented or have been mapped within the Project area. Therefore, construction or operation of the Project will not contribute to cumulative loss or degradation of these resources.

6.15.5.10 Wildlife

Several wind energy and large-scale oil and gas development projects have been developed in surrounding counties and other wind energy projects are in the monitoring stages within the area of study. For wind energy projects, a general estimate is that permanent direct disturbance is approximately one to four percent of the total lease area. Therefore, the overall disturbance footprint is incrementally small on all currently operating wind energy projects in Converse and Laramie Counties; however, the functionality of these habitats may be altered on a larger scale.

The Project will result in localized fragmentation and disturbance, direct and indirect effects, and increase of human presence in rural areas of significant wildlife value. Each project was sited with the best available data at the time; however, the cumulative loss of habitats and fatality risk to certain species warrants consideration. The construction and implementation of these projects have also resulted in the loss of vegetation communities, which is a net reduction, albeit small, in wildlife habitat.

The construction of the Project may potentially cause temporary displacement of individuals for some wildlife species that might move in response to construction activity. It will permanently reduce existing habitat by a finite amount, estimated to be approximately one to four percent of the Project area, the effect of which will vary among species. The Project is extremely well sited with regard to wildlife impacts; it is outside of crucial big game range and greater sage-grouse core area, and with a low number of ephemeral stream crossings, and located substantial distances from perennial flows. Nevertheless, future construction of wind energy projects in this region may lead to additional cumulative impacts to wildlife.

CFEP has underwent, and is continuing, robust preconstruction assessments, reviewed by state and federal agencies, to ensure that operational mortality risk levels were appropriate for construction of the Project. These measures have helped minimize cumulative impacts to wildlife species. Additionally, this project will participate in scientific studies to further study energy and wildlife impacts as required by implementing agency monitoring and protection measures. Detailed scientific study results will lead to better understanding of direct and indirect, as well as cumulative wildlife impacts, to better develop and implement mitigation strategies and measures to further reduce wind energy cumulative wildlife impacts.

6.15.5.11 Avian Species and Bats

Reduced avian use near turbines has been attributed to avoidance of turbine noise and maintenance activities and reduced habitat effectiveness because of the presence of access roads and large gravel pads surrounding turbines (Leddy,

1996; Johnson et al., 2000). The presence of WTGs may potentially change the local landscape so that avian use patterns are altered, thereby displacing wildlife away from the Project facilities. However, it is unlikely that displacement of birds during construction or operation would result in any population impacts at the Project site due to the abundance of undisturbed native habitat in the region.

An impact on avian species will be collisions with turbines. Using baseline avian use data and comparing to operational monitoring data collected at existing wind projects, raptor collision mortality at the Project site is estimated to be comparable to other similar-sized projects in the region. Passerines are likely to make up the largest proportion of fatalities at the Project site based on their abundance.

As of March 2009, approximately 28,000 MW of wind energy has been installed nationwide. Avian collision deaths for all existing wind energy projects are estimated at 2.11 fatalities per turbine or 3.04 per MW per year (Erikson et al., 2005). Assuming similar impacts at all wind energy facilities, approximately 85,000 birds are killed by collision with WTGs annually.

Erikson, et al. (2005) estimated multiple sources of anthropogenic sources of bird fatalities. Proportionally, wind turbines account for less than 0.01 percent of all anthropogenic avian collisions. Buildings, power lines, and cats together account for 84 percent, or about 780 million, fatalities. Considering all anthropogenic sources of avian fatalities, the small number of bird fatalities expected from the project is not a significant cumulative impact. Even as the number of wind turbines in the United States increases, wind turbine-related bird fatalities would still cause no more than a small percentage of all collision deaths related to other non-wind-power related structures (Erickson, et al., 2005).

With a specific goal of examining cumulative impact of wind energy facilities on birds and bats, Johnson and Erikson (2008) studied the Columbia Plateau Ecoregion in eastern Washington and Oregon. The study reviewed post construction bird fatality survey results from 11 operational wind farms in the same area. The purpose was to determine if concentrated wind energy development could cumulatively impact birds, or disproportionally impacts certain species. The study found that when considered cumulatively, bird fatalities at all 11 locations are distributed among 77 species. When examined by type (i.e., raptors, waterfowl, and upland game birds), no species or type was subjected to losses large enough to have a measurable cumulative impact.

Bat casualties have been reported from most wind power facilities where post construction fatality monitoring data are available. In Wyoming, the Foote Creek Rim Wind Energy Facility conducted an avian and bat mortality study between November 1998 and June 2002 (Young et al., 2003). The majority of recorded fatalities in the western United States occur during the fall migration period, and the species most often found during carcass searches were the hoary bat and

the silver-haired bat. More importantly, hoary bat and silver-haired bat are not designated as sensitive or federally listed species.

Bat migration patterns and densities in Wyoming are generally lacking. However, with the known presence of bat and subsequent collision mortality at wind projects, bat numbers likely increase during fall migration periods. Subsequently, potential bat casualties may increase during migration periods, as has been the case for those western United States wind projects at which fatality monitoring has taken place. Due to the scarcity of bat-turbine interaction studies, bat mortality as a result of wind energy facility development has been difficult to assess leaving cumulative impacts to bat species as speculative and uncertain.

To determine consistency with mortality probability estimates, CFEP will conduct post construction avian and bat fatality monitoring at the Project area commencing in spring 2011. It is anticipated that the cumulative contribution to potential bat mortality will be similar to those reported for other studies in Wyoming and the western United States and will add to the industry's and regulating agencies' overall understanding of the resource impacts.

6.15.5.12 Federally-Listed Species

As previously detailed, no impacts to black-footed ferrets, Ute ladies'-tresses, Colorado butterfly plant, or blowout penstemon are anticipated from the Project; there are no cumulative impacts associated with this Project. Similarly, downstream species in the Platte River system will be unaffected by water use from the Project due to siting and BMPs to minimize surface water and aquatic habitat impacts preclude any cumulative impacts to federally listed wildlife, plant or fish species, or their habitats potentially occurring downstream. Therefore, cumulative impacts to threatened and endangered species or their critical habitat will not occur as a result of the Project.

6.15.5.13 Aquatic Systems

No perennial streams are located within the CFEP project area. No operational impacts would be expected from this Project that would result in cumulative impacts during construction or operation of the Project. Due to the negligible impacts to aquatic resources associated with this Project during construction and operation, water quality and quantity impacts are not expected to contribute to any significant impacts to aquatic resources on a cumulative scale.

7.0 Controls, Mitigation, and Monitoring Measures

Rule I Section 7(k)(i) – Controls and Mitigation Measures. The Applicant shall describe the procedures proposed to avoid constituting a public nuisance, endangering the public health and safety, human or animal life, property, wildlife or plant life, or recreational facilities which may be adversely affected by the proposed facility, including impact controls and mitigating measures proposed by the Applicant to alleviate adverse environmental, social and economic impacts associated with construction and operation of the proposed industrial facility.

A number of specific mitigation measures will be implemented to alleviate impacts related to construction and operation of the Project. These measures are described in the following sections. The construction or operation of the project will cause negligible changes in the level of service by local governments.

7.1 Controls

The following control measures, in combination with setback distances, significantly reduce the likelihood of the public coming within a hazardous distance from turbine blades and electrical equipment. The Project will be designed, constructed, and operated to adequately restrict public access and minimize impacts.

7.1.1 Avoidance

CFEP developed a detailed site assessment of known and identified environmental constraints across the entire Project site and used this information in a spatial context to determine Project size and site facilities appropriately. The process of identifying constraints and modifying facility plans to accommodate those constraints was an iterative process that resulted in a number of layout revisions over the course of months. The Project incorporated environmental constraints and located wind turbines and appurtenant infrastructure during the preliminary design to avoid impacts to visually sensitive or aesthetically important habitats. The final site plan considers known sharp-tailed grouse leks, raptor nests, environmental and land use constraints and utilizes areas that are most appropriate for Project development.

7.1.2 Prevention

Primary among the means of preventing hazards described herein will be adherence to appropriate design and construction protocols such as the

International Electrotechnical Commission (IEC) 61400-1, the IEC's International Standard on wind turbines (IEC, 1999). This will ensure that the load assumptions, design, construction standards, and safety features are in accordance with industry norms and benefit from the experience of many manufacturers and operators.

A second important form of prevention is the establishment of a skilled workforce and implementation of effective facility-wide maintenance, monitoring, compliance, and security programs. This includes the preparation and implementation of a SWPPP, SPCC Plan, Emergency Response Plan, and Fire Protection and Prevention Plan, and consultation with appropriate regulatory agencies such as the FAA and NTIA.

7.1.3 Exclusion

Every hazard identified herein decreases as some function of linear distance. In many cases, therefore, it has been possible to reduce or eliminate hazards to persons and facilities by prohibiting or controlling their presence in the area of site influence. Where multiple hazard areas overlap, the largest distance should govern. The Project area will have controlled access, and access to the facilities will be limited to persons who are knowledgeable of safety measures and potential risks.

7.1.4 Restrict Public Access

The Project and appurtenant facilities will be located on a combination of private fee and State of Wyoming lands. Some State of Wyoming lands within the Project boundary are surrounded by private fee lands, and public access will be limited to that granted by the surrounding landowners. Each turbine tower will have a locked entry door at ground level and an internal access ladder with safety platforms for access to the nacelle to prevent unauthorized individuals from climbing the tower. Step-up transformers will be located within locked cabinets at the base of each tower. Additionally, CFEP will restrict public access to any related or supporting facilities that could pose a potential safety threat (i.e., the on-site collector substation). The substation will be located within a fenced area with a locked gate pursuant to established CFEP policies.

7.1.5 Health and Safety Standards

CFEP, in conformance with the ideals of its parent company, Novelution Wind, LLC, holds itself to a high standard on safety; therefore, all construction general contractors are required to meet strict safety qualifications. CFEP's formal policy on safety is that people are its core asset and are held in the highest regard. Exceptional policies have been adopted to maintain the safest working conditions

and protections for employees. CFEP is committed to a safe and healthy workplace that promotes a zero-accident culture. CFEP is committed to continuous improvement to identify and control risks so that company safety metrics and performance meets high expectations until zero incidents are achieved. To meet this commitment, it is CFEP's policy that all organizations and individuals will do the following:

- Operate in compliance with or exceed all health and safety governmental laws, regulations, ordinances, standards and permit requirements, and established CFEP policies and standards;
- Ensure all employees are involved in health and safety programs with appropriate training and communication to work responsibly, make decisions to carry out their duties, and be accountable for the results;
- Provide a structure that ensures effective health and safety management throughout the company with risks, impacts, and legal requirements controlled through appropriate actions and governance;
- Ensure that health and safety goals and stretch targets are set, communicated to all employees, and performance is monitored to promote continuous improvement;
- Work to proactively prevent incidents, accidents, and environmental damage before these occur through sustainable actions and process improvements at all locations;
- Promote the health and wellness of employees by identifying and controlling workplace health risks, promoting work-life balance, and encouraging employees and their families to be proactive about their health through communication, and activities.
- Require that contractors and others associated with operations comply with health and safety requirements and are never asked to perform anything unsafe or in violation of environmental laws;
- Ensure that public safety, security of people and assets, conservation, and environmental stewardship are fundamental to company operations; and
- Design, construct, and operate facilities in ways that minimize their negative health and safety impacts and maximize their positive contribution, as available technology and conditions permit.

7.2 Mitigation Measures

Adequate safety devices, company operational policies, and testing procedures will be in place to assure safe construction and operation of the Project. In addition, a broad array of measures has been proposed to mitigate the potential hazards associated with the Project and the exposure of persons, animals, and facilities in the area of site influence. These measures can generally be classified as avoidance, prevention, and exclusionary actions.

7.2.1 Failure of Machinery and/or Structures

Mitigation or prevention of impacts from mechanical failure of the Project's components will be achieved by a combination of planning and controlled site access. Following industry guidelines and turbine certification processes, the safest, reliable, and state-of-the-art facilities will be constructed. WTGs are equipped with multiple safety systems as standard equipment. For example, rotor speed is controlled by a redundant pitch control system and a backup disk brake system. Critical components have multiple temperature sensors and a control system to shut the system down and take it off-line if an overheating condition is detected. Lightning protection is standard on the WTGs, and a specially engineered lightning protection and grounding system will be installed for the Project.

7.2.1.1 Safety Setbacks

The turbines have been sited at locations that are a minimum of 1.1 tip-height from public roads. As presently designed, the nearest turbine to any public road is approximately 430 ft, which exceeds the reasonable setback requested by WYDOT of one tip-height. Lastly, the operations team will conduct an annual anchor bolt testing to further minimize this risk.

7.2.1.2 Blade Throw

One of the primary safety hazards of wind turbines occurs if a rotor blade breaks and parts are thrown off. This is referred to as "blade throw" and could occur as a result of rotor overspeed, although such an occurrence has been extremely rare and happens mostly with older and smaller turbines. Material fatigue can also cause a blade to break. While persons, animals, and facilities within the blade throw hazard zone could theoretically be at risk of being struck, the Project is not expected to result in any blade throw risk due to the distance of WTGs from residences and public roads, as presented previously.

During construction, CFEP will follow the manufacturers' recommended handling instructions and procedures to prevent damage to towers or blades that could lead to failure. In addition, certification of the wind turbine to the requirements of IEC 61400-1 will ensure that the static, dynamic, and defined-life fatigue stresses in the blade will not be exceeded under the combined load cases expected at the Project site. The standard includes safety factors for normal, abnormal, fatigue, and construction loads. This certification, together with regular periodic inspections, will give a high level of assurance against blade failure in operation. As mentioned, proposed WTG locations exceed a reasonable setback requirement of one tip-height.

7.2.1.3 Blade Fragment Throw

The potential of a blade fragment throw is similar to ice throw concern. Lightning strikes causing blade failure have been documented. Acts of vandalism such as gunshots also could conceivably damage rotor blades, causing a blade fragment to be thrown. Persons, animals, and facilities within the blade fragment throw hazard zone could theoretically be at risk of being struck. The Project is not expected to result in any blade fragment throw risk due to the distance of WTGs from residences and public roads. The distances presented for ice throw provide a reasonable approximation of the hazard zone for blade fragment throw as well.

7.2.1.4 Ice Throw

Under the correct conditions, ice may accumulate on the tower, nacelle, or blades. If the blades are rotating, fragments can break free and be thrown. The distance ice may be thrown depends on the rotational speed of the blade, mass of the ice, wind speed and direction, aerodynamic properties of the ice fragment, and air density (among other variables). Given these variables, it is inherently difficult to determine an appropriate distance to set back a turbine to protect against ice throw. Nonetheless, some estimates can be made and, combined with observational data, effective setbacks can be recommended. Mathematical equations and statistical calculations indicate the probability of an ice throw incident is very low. When combined with the rural nature of the Project site, and the fact that ice throw greater than 120 m (389 ft) has not been documented, no substantive public risk would exist.

7.2.1.5 Wind Turbine Tower Collapse

Tower collapse is extremely unlikely as the towers and foundations are designed to the Wyoming State Building code, which has adopted the provisions of the 2006 IBC, and the seismic provisions contained in this code apply to the project site location. The tower and associated foundation will be located outside of areas prone to flooding and designed to withstand a 3 second 130 mph gust per IEC standards. The Project will employ a modern turbine design, including a safety system ensuring that the WTG is shut down immediately at the onset of mechanical disorders such as nacelle vibration, over speed, grid electrical disorders, or loss of grid power. Turbine towers will incorporate structural designs capable of withstanding large seismic events, high winds, and flooding. Because all turbine structures would employ construction certified as described previously, the potential hazards associated with tower collapse are less than significant.

In the extremely unlikely event of a turbine tower collapse, the potential risk to the

public would be negligible because the Project will be constructed on property with controlled access across private land, and no turbine will be constructed within 1.1 turbine tip-height from the nearest public road.

7.2.2 Air Quality

The following mitigation measures will be followed to reduce dust and air emissions from the Project's construction-related activities:

- Construction-related dust disturbance shall be controlled by the periodic application of water or other dust suppressants to all disturbed areas along the active construction right-of-way and access roads.
- Vehicles and other equipment shall be maintained and kept in good repair to minimize emission of exhaust gases.
- As part of site orientation, CFEP will present guidelines for minimizing engine idling. This will be a part of the orientation given to all CFEP and contracted workers.
- Any stationary sources associated with construction activities requiring WDEQ–AQD permits shall be controlled in accordance with relevant regulations and issued conditions.

7.2.3 Noise

Although no impacts to residents are anticipated, the following mitigation measures will be implemented to reduce noise and the potential for annoyance from the Project's construction-related activities:

- CFEP has incorporated a minimum setback of 1000 feet from all residences.
- Construction and hauling equipment shall be maintained adequately and equipped with appropriate mufflers.
- Noisy construction activities that might result in legitimate complaints, such as blasting or pile driving, shall be limited to daylight hours, if feasible.
- Stationary construction equipment (i.e. air compressors, generators) shall be located away from residences to minimize noise impacts.

7.2.4 Soil Resources/Geologic Hazards

Erosion control measures and reporting measures will be prescribed in the WYPDES construction storm water permit and administered through construction specifications and BOP contractor implementation. Therefore, site-specific erosion control measures will be monitored for effectiveness to minimize the

impacts to soils during and after construction. Additional proposed mitigation measures and BMPs are discussed in Section 7.2.8, *Surface Water and Groundwater*.

Plans for alleviating geologic/soil impacts could include but are not limited to:

- An erosion control plan will be prepared that addresses excavation, grading, and placement of erosion control measures during and after construction. On completion of the construction activities, all work areas, except any permanent access roads will be regraded so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural re-vegetation, provide for proper drainage and prevent erosion. Re-vegetation will also be implemented for all areas temporarily disturbed by the construction of the facility in conformance with landowner agreements.
- Construction zones and areas to be disturbed will be well defined, limited in extent, and managed by onsite inspectors and construction managers.
- Periodic inspection will be made of erosion control measures, and as required after precipitation events. Erosion control measures will be repaired or replaced as necessary.
- Berms and other water-channeling measures will be used to direct storm water runoff to appropriate detention ponds, where necessary.
- Barriers and other measures including hay bales, silt fences, and straw mulches will be used to minimize and control soil erosion.
- Soils and claystone bedrock with the potential for collapsing or swelling will be identified during the preliminary geotechnical investigation. The extent and nature of potentially collapsing or swelling soils will be identified during the geotechnical investigation for final design. These soils will be mitigated by over-excavation to stable foundation materials or using a subgrade that consists of non-permeable material to prevent swelling or collapsing.
- Side slopes created by grading will not exceed the soil strength limits, as prescribed by the final road design and turbine layout engineering design. Potentially unstable areas will be identified and avoided.
- Mitigation for potential rapid erosion and gullying would include erosion protection structures in areas identified to be potentially subject to rapid erosion, properly-sized culverts at drainage crossings, and avoiding placing structures or roads in areas that are susceptible to rapid erosion or gullying.
- The seismic site class according to the International Building Code will be determined during subsequent geotechnical investigations. Structures and turbine foundations will be designed to withstand anticipated seismic loads.

7.2.5 Cultural Resources

The following mitigation measures will be followed to reduce cultural resources impacts from the Project's construction-related activities:

- Although none have been identified, known cultural resource locations eligible or unevaluated for listing on the NRHP shall be avoided by marking them on construction drawings as "no entry" areas and by flagging them in the field, if necessary. Construction crews shall participate in environmental compliance training, including the necessity of avoiding cultural resource sites, to further increase awareness of the site and to prevent accidental damage to known and undiscovered cultural resources (see Artifact Finding Instructions in **Appendix I**).
- Should any previously unknown historic/prehistoric sites or artifacts be encountered during construction, all land-altering activities at that location shall be immediately suspended and the discovery left intact until such time that the CFEP and the landowner are notified and appropriate measures are taken to ensure compliance with federal and state laws and regulations.
- Should any human remains be discovered, all land-altering activities at that location shall be immediately suspended and the Platte County Coroner shall be immediately notified.
- If, during micrositing and final site design, Project features are required to be located outside of the area inventoried for cultural resources, additional surveys shall be completed to ensure avoidance of unevaluated or eligible sites.

7.2.6 Topsoil and Vegetation Resources

CFEP and its contractors shall exercise care to preserve the natural landscape and shall conduct construction operations to prevent any unnecessary damage to, or destruction of, natural vegetation features. Generally, the Wyoming Department of Environmental Quality, Land Quality Division practices for topsoil handling and renegotiation are oriented towards ensuring that construction activities preserve the integrity of the topsoil by minimizing the mixing of productive topsoil with the less productive subsoil during grading, trenching, and backfilling, minimizing risk of contamination, and ensuring that effective re-vegetation is completed. Where appropriate in temporarily disturbed areas, CFEP will incorporate methods to preserve topsoil by placing topsoil in a discrete row or pile along the edge of the disturbed area. Topsoil will be kept segregated from subsoil excavated from the trench or temporarily cleared area. Topsoil segregation would facilitate re-vegetation of these areas by preserving the more fertile topsoil and native seed bank.

Following completion of construction activities, all work areas, except any

permanent access roads, shall be regarded so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural re-vegetation, provide for proper drainage, and prevent erosion. The methods described below are recommended for all areas of temporary ground disturbances throughout the Project area.

CFEP will re-vegetate all temporarily disturbed areas inside the Project boundary in consultation with each respective landowner. Re-seeding and mulching will be done utilizing commercially accepted practices as appropriate for the soil and terrain being restored. Temporary and permanent seeding should be done during the appropriate seasons and moisture regimes, following the onset of winter and spring seasonal rains. Disturbed, unseeded ground may require chemical or mechanical weed control in May or June, before weeds have a chance to go to seed.

Erosion control measures may be installed after seeding and may include filter bags, sediment fences, silt curtains, sediment traps, or other similar devices or impervious materials. Erosion control measures will be implemented until soils are stabilized by a vegetation growth from seed planting.
The following mitigation measures will be followed to reduce impacts to native vegetation from construction-related activities:

- CFEP and its contractors shall exercise care to preserve the natural landscape and shall conduct construction operations (including all construction-related activities and CFEP's designated access roads/trails and staging areas) to prevent any unnecessary damage to, or destruction of, natural vegetation features.
- Disturbed soil surfaces shall be stabilized with the appropriate native seed mixture as soon as practicable after construction. Areas of soil disturbance shall be seeded with the referenced seed mixture or as agreed with the landowner.
- Landscape fabric, cellulose, straw mulch, or other suitable erosion control materials shall be used according to manufacturer/supplier specifications for application to ensure adequate temporary erosion control.

7.2.7 Noxious Weeds

While ground disturbing activities inherently increase the risk of weed introduction, these risks can best be mitigated through timely re-vegetation. All temporarily disturbed areas not used for Project infrastructure during construction will be reseeded in accordance with consultation with landowner as described above. Upon completion of construction, all staging and lay down areas will be rehabilitated.

To limit infestations and new populations, the disturbed sites will be monitored and any colonizing noxious weeds will be controlled using mechanical or chemical methods. Overall, impacts to native vegetation communities will be minimized through best management practices.

7.2.8 Surface Water and Groundwater

Under the WYPDES, construction storm water permitting is required for projects that will disturb more than five acres. The Project will require a WYPDES NOI to be prepared for a general construction permit for storm water discharges, as well as a SWPPP for the construction phase at the Project site. The construction SWPPP will focus on sedimentation and erosion controls during construction and will set forth a schedule for regular inspections of appropriate controls at the construction site.

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. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, concrete, sanitary waste, industrial waste, radioactive substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution. These prevention activities will be detailed in the Project SWPPP.

The following mitigation measures will be followed to reduce impacts on surface water and groundwater resources from the Project's construction-related activities:

- 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. Such pollutants and wastes may include, but are not restricted to, refuse, garbage, cement, concrete, sanitary waste, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution. These prevention activities will be detailed in the Project SWPPP.
- Borrow pits shall be so excavated that water will not collect and stand therein. Before being abandoned, the sides of borrow pits shall 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.
- Any remnant soil waste piles shall be shaped to provide a natural appearance.

- Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses shall not be performed without prior approval by the applicable land managing agency or landowner. A de-watering permit will be obtained from the WYDEQ if needed.
- Excavated material or other construction materials shall not be stockpiled or deposited near or on stream banks, lake shorelines, or other water course perimeters where they can be washed away by storm runoff or can, in any way, encroach upon the actual water body itself.
- Turbidity control methods such as settling ponds, gravel filter entrapment dikes, approved flocculating processes that are not harmful to fish, recirculation systems for washing of aggregates, or other approved methods shall be used to treat waste waters from construction operations before they enter streams, water courses, or other surface waters. Any such wastewaters discharged into surface waters shall be essentially free of settleable material.

7.2.9 Land Use and Recreation

The following mitigation measures will be followed to reduce land use and recreation impacts from construction and operation related activities:

- Hunting will continue on private land during Project operations as per the landowner lease agreements.
- To the extent feasible, the contractor shall limit movement of crews, vehicles, and equipment on the right-of-way and approved access roads to minimize damage to property and disruption of normal land use and recreation activities.
- The contractor shall maintain all fences and gates during the construction period. The contractor shall immediately repair any fence or gate damaged during construction.
- The contractor shall eliminate, at the earliest opportunity, all construction ruts that are hazardous to agricultural or ranching operations and/or movement of vehicles and equipment. Such ruts shall be leveled, filled, and graded or otherwise eliminated in an approved manner. Damage to ditches, tile drains, culverts, terraces, local roads, and other similar land use features shall be corrected, as necessary, by the contractor. The land and facilities shall be restored as nearly as practicable to their original condition.
- Construction trails not required for maintenance access shall be restored to the original contour and made impassable to vehicular traffic. The surfaces of such construction trails shall be scarified and reseeded as needed to facilitate re-vegetation, provide proper drainage, and prevent erosion.

7.2.10 Wetland/Waters of the United States Resources

Micrositing appurtenant linear features during the final design phase will avoid, prevent, or minimize potential impacts to wetlands and water bodies. The Project shall be constructed in compliance with the CWA, where applicable. Project layout will be designed to avoid or minimize impacts to waters of the U.S. by locating facilities outside of delineated waters of the U.S. ordinary high water mark, where practicable.

Nationwide permit numbers 12 and 14 require pre-construction notification of the local USACE regulatory office before dredge or fill activities may occur in waters of the U.S. if potential impacts meet or exceed 0.1 acre. Additionally, nationwide permit Number 12 requires a pre-construction notice for projects with 500 linear feet of potential impacts to waters of the U.S. BMPs such as culverts (see Section 7.2.4) shall be used to minimize adverse effects to waters of the U.S. from road and power collection line construction.

Section 401 state water quality certification regulatory requirements may apply to the Project because of the discharges of dredged or fill materials into jurisdictional waters of the U.S.A. Section 401 water quality certification may be required to demonstrate that any Project construction activities (e.g., discharge of dredged or fill materials) will not violate the state's water quality standards or result in adverse long-term or short-term impacts on water quality.

A WYPDES NOI shall be prepared for a general construction permit for storm water discharges. In addition to the NOI, a SWPPP shall be prepared for the construction phase at the Project site. The construction SWPPP will focus on sedimentation and erosion controls during construction and will set forth a schedule for regular inspections of appropriate controls at the construction site.

7.2.11 Visual Resources

The following mitigation measures will be followed to reduce visual resource impacts from construction-related activities:

- CFEP and its contractors shall exercise care to preserve the natural landscape and shall perform construction operations to prevent any unnecessary damage to, or destruction of, natural features.
- Construction routes not required for operations and maintenance access shall be restored as closely as possible to the original condition, pending landowner consent. The surfaces of such construction trails shall be scarified as needed to provide a condition that will facilitate natural re-

vegetation, provide proper drainage, and prevent erosion. Additionally, access road edges will be reclaimed where possible, but remain compacted to allow for maintenance crane access.

7.2.12 Wildlife Resources

Rule I Section 7(k)(ii) – Monitoring Programs. The Applicant shall describe the procedures proposed to avoid constituting a public nuisance, endangering the public health and safety, human or animal life, property, wildlife or plant life, or recreational facilities which may be adversely affected by the proposed facility, including monitoring programs to assess effects of the proposed industrial facility and the overall effectiveness of impact controls and mitigating actions.

WGFD and USFWS have been consulted to aid in identifying potential wildlife impacts from the Project and to reduce and monitor those impacts, if any. As requested by WGFD in CFEP's May 27, 2009 meeting with the agency, and approved via letter agreement provided by WGFD on December 21, 2009, the following issues were confirmed (**Appendix D**).

- Terrestrial and Aquatic Considerations
- Protocols for avian use and raptor survey requirements were confirmed.
- Mitigation and avoidance (with regards to setbacks and timing stipulations) requirements were approved.
- Retile and Amphibian Considerations

It was agreed during the meeting and subsequent correspondence that the Project area overlies mule deer crucial winter range in T22N R65W sections 27 and 28. These sections are within the overall project boundaries, however Novelution Wind does not currently have nor plans to obtain wind leases for these two sections of land. The Project area does not fall in greater sage-grouse core area so setbacks and requirements for monitoring do not apply. Prairie sharp-tailed grouse do occur in the area. Avian use, raptor nest and lek surveys are ongoing at this time. WGFD recommends applying the standard stipulation of ¼ mile buffer around known sharp-tailed grouse leks. To protect aquatic systems, WGFD does not anticipate the need to conduct geomorphological monitoring of Chugwater Creek, as long as the Project is designed such that no runoff occurs to the west toward Chugwater Creek. With respect to reptile and amphibian considerations, WGFD recommends that CFEP contact the Department to discuss specific monitoring protocols as the location of roads and towers become finalized.

At the recommendation of WGFD and USFWS, the following specific avoidance measures will be implemented to minimize or mitigate impacts to wildlife:

- CFEP will locate all Project infrastructures to observe a minimum 0.25-mile buffer around known occupied leks.
- CFEP will not directly impact perennial water bodies.
- CFEP will follow USFWS and WGFD buffer recommendations for siting WTGs and timing of construction activities with respect to raptor nests identified as active in 2010 to minimize disturbance and collision risk of nesting and fledgling raptors.
- CFEP will site the transmission line greater than 0.25 mile from all active raptor nest sites identified during 2010 survey.
- Electrical collector lines will be buried in temporarily disturbed access road shoulders, where practical.
- The overhead distribution transmission line will be constructed in accordance with the recommendations of the Avian Power Line Interaction Committee for raptor protection on power lines.
- Flight diverters will be installed in areas that span perennial streams, where raptor use would be expected to occur at greater frequency than in upland areas.

7.3 Monitoring Programs

7.3.1 Avian and Bat Fatality Monitoring

In addition to the wildlife mitigation and avoidance measures described above, it is the policy of CFEP, as a subsidiary of Novelution Wind, LLC, to implement Avian and Bat Protection Plans for its wind energy projects (see **Appendix J**). The monitoring study will estimate the annual number of avian and bat fatalities attributable to wind turbine collisions from Project operations throughout Year 1 of operation. This information will be used to determine whether estimated fatality levels for the Project are high, moderate, or low compared to other regional wind energy facilities. The proposed monitoring study conforms to industry standards in the western U.S. and provides good baseline data on avian and bat fatality rates at wind energy facilities in Wyoming.

7.3.2 Greater Sage-Grouse Lek Monitoring

CFEP is located outside of the Greater Sage-Grouse Core Breeding Areas (Version 2). Notably, CFEP is located outside of current Sage-Grouse distribution areas (Version 2). In accordance with the request of the Governor's office, CFEP is located east of Interstate -25.

In the spring of 2010, CFEP will conduct sharp-tailed grouse surveys within and around the Project area. WTG's will not be constructed within .25 miles of any

active leks. CFEP will use habitat and ground survey data to provide a map of sharp-tailed grouse habitat within .25 miles of the Project area when the data become available.

7.3.3 Raptor Nest Monitoring

Spring 2010, CFEP will complete pre-construction raptor nest surveys to identify active nests and determine annual status of nests within one mile of the Project area for 1 year of operation where landowner access is obtained. Surveys will be completed from late April through early July.

7.3.4 Technical Advisory Committee Review

A TAC will review the monitoring protocols, assess study results, and prepare recommendations for CFEP for the first three years of operation. The TAC will be composed of representatives from WGFD, USFWS, and resource specialists or representatives designated by CFEP.

7.3.5 Employee Orientation Program

Construction workforce members will attend a new employee orientation program, in which they are provided information to enhance wildlife awareness, minimize impacts to wildlife, and understand their role in compliance with CFEP permit conditions and commitments. Additionally, personnel will be instructed on what to do when encountering dead or injured wildlife during construction (see, Wildlife Incident Reporting and Handling System - **Appendix H**).

7.4 Worker, Environmental, and Facility Controls

There are no specific health and safety standards related to the siting or operation of wind energy facilities. Nonetheless, in an effort to prevent personal injury and property or environmental damage, conditions or actions that may put workers, the environment, or the facility at risk have been identified. CFEP has taken measures to minimize the potential for an incident to occur yet effectively address incidents if they do occur. Careful planning and design of the facility and its components are in place to protect both workers and the general public during construction and operation of the facility.

7.4.1 Occupational Hazards

Construction and operations workers at any facility are subject to risk of injury or fatality from physical hazards. While such occupational hazards can be

minimized when workers adhere to safety standards and use appropriate protective equipment, fatalities and injuries from on-the-job accidents can still occur. Occupational health and safety are regulated at the federal level through OSHA (29 USC 651 et seq.). Wyoming has additional laws and regulations that build on the federal law. It is CFEP's firm belief and commitment that workplace accidents and injuries are preventable and that a zero injury and illness culture at every worksite is a fundamental aspect of EHS excellence and continuous improvement. CFEP's EHS Plan that outlines the overall expectations for EHS performance on the Project site for all employees, contractors, and subcontractors is discussed in detail in Section 3.

Some of the occupational hazards associated with wind energy projects are similar to those of the heavy construction and electric power industries, while others are unique to wind energy projects (i.e., heights, high winds, energized systems, and rotating/spinning equipment). In particular, the hazards of installing and repairing turbines can be similar to those of building and maintaining bridges and other tall structures.

The WTG manufacturer will provide an O&M manual that will include system safe operating limits and descriptions, startup and shutdown procedures, alarm response actions, and an emergency procedures plan.

CFEP and its subcontractors will comply with all applicable local, state, and federal safety, health, and environmental laws, ordinances, regulations, and standards. Some of the main laws, ordinances, regulations, and standards designed to protect human health and safety that will be reflected in the design, construction, and operation of the Project include:

- Occupational Safety and Health Act of 1970 (29 USC 651, et seq.) and 29 CFR 1910, Occupational Safety and Health Standards;
- Americans with Disabilities Act (ADA) for accessibility at the O&M Building;
- Uniform Fire Code Standards;
- Uniform Building Code;
- National Fire Protection Association (NFPA), which provides design standards for the requirements of fire protection systems;
- National Institute for Occupational Safety and Health (NIOSH), which requires that safety equipment carry markings, numbers, or certificates of approval for stated standards;
- National Electric Safety Code;
- American Concrete Institute Standards;
- American Institute of Steel Construction Standards;
- American Society for Testing and Materials; and
- National Electric Code.

7.4.2 Public Safety

Warning signs will be posted along the access roads to inform the public of construction activities and recommend that the public not enter the site. Similarly, signs will be posted in and around the Project area to prevent construction traffic from inadvertently leaving the main Project access roads and entering public or private roadways that could endanger members of the public. For areas where public safety risks could exist and site personnel would not be available to control public access (such as excavated foundation holes and electrical collection system trenches), warning signs and temporary fences will be erected. Fencing may also be installed around material storage, staging, and/or laydown areas. Other areas determined to be hazardous, or where issues of security or theft are of concern, may also be fenced. Temporary fencing around unfinished turbine bases, excavations, and other hazards will typically be a high-visibility plastic mesh. Security guards, cameras, and/or additional fencing will be used if necessary to protect public health and safety and Project facilities.

7.4.3 Traffic Management

7.4.3.1 Construction

The potential for traffic issues will be highest during construction, when deliveries of equipment and materials as well as worker traffic will occur. CFEP is in consultation with WYDOT to ensure the execution of a well-coordinated transportation plan that will minimize risks and inconvenience to the public. The plan will focus on traffic and circulation primarily within and in the immediate 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. Signs will be posted in and around the Project area to prevent construction traffic from inadvertently leaving the main Project access roads and entering public or private roadways that could endanger members of the public. Where applicable and appropriate, CFEP expects to enter into road use and repair agreements with WYDOT and Platte County and will ensure the agreements are largely finalized prior to use by construction vehicles.

7.4.3.2 Operation

In terms of access traffic, the Project will operate continuously (24 hours per day, 7 days per week) using an automated system. It will employ an estimated 16 to 17 full-time workers during the first year of operation and then increase to 64

when all phases of development are completed. Traffic to and from the site will be minimal.

7.4.4 Electromagnetic Fields

Electromagnetic fields (EMFs) are associated with electric transmission and are not specific to wind power projects. EMFs are only considered a possible issue when associated with the siting of high-voltage (more than 115 kV) overhead transmission lines in close proximity to residences. EMFs are generally not an issue related to wind turbines, which have low voltage drop-cables (575 to 690 V) contained within steel towers and have a predominately underground collection system also at a low voltage (34.5 kV). In addition, as currently designed the closest residence is located approximately 1000 feet from the nearest WTG. For this Project, EMF exposure is very low because the line passes over and through mainly undeveloped lands.

The high-voltage transmission line has not been sited at this time. Proximity to existing residences will be determined depending on final transmission route chosen. The interconnection at an existing substation would not expose additional areas to EMFs and the transmission line will be designed and built according to industry standards to avoid any potential EMF impacts.

Exposure of individuals working at the facility to EMFs generated by the Project would be minimal because of the low voltage. Distribution lines (34.5 kV) for the project would be underground and cross areas that are not inhabited or used on a regular basis, so that regular long-term exposure of individuals to EMFs would not occur. Therefore, impacts from Project EMFs are less than significant.

Because of the distance of the proposed transmission line routes from any residences or metallic structures, nuisance shock potential caused by induced EMF is very low. In areas where the transmission feeder lines run parallel to existing wire fence lines, the fence line would be grounded with a copper grounding rod and ground straps at adequate intervals (typically every 1,000 feet depending on the fence line and soil conditions) to reduce the potential shock hazard from induced EMF in the fence wire.

7.4.5 Shadow Flicker

Shadow flicker caused by wind turbines is defined as alternating changes in light intensity caused by the moving blade casting shadows on the ground and stationary objects, such as a window in a dwelling. No shadow flicker will be cast when the sun is obscured by clouds/fog or when the turbine is not rotating. Shadow flicker can occur only if the turbine is located in close proximity to a receptor and is in a position where the blades interfere with very low-angle

sunlight. Following the recommended setback requirements the Project is not expected to result in any shadow flicker effects to any residences.

7.4.6 Mechanical Failure

The wind turbines that would be used for the Project meet international engineering design and manufacturing safety standards. This includes tower, blade, and generator design. There is an international quality control assurance program for turbines, along with a number of relevant safety and design standards. The lead organization for development of international standards for wind turbine generating systems is the IEC, and the most broadly applied standard covering machinery and structures is IEC 61400-1: *Wind Turbine Generator Systems – Part 1: Safety Requirements* (IEC Edition 2, 1999). In the United States, AWEA is the designated organization for participation on IEC committees.

Independent agencies are retained by wind turbine manufacturers to certify that the design and construction of a given turbine/tower assembly conform to accepted standards in terms of design load assumptions, construction materials and methods, control systems, and safety measures. This is a generalized type of certification provided at manufacturers' expense. Once a specific system make and model are selected, the user then customarily funds a second independent certification attesting to the applicability of the system design and construction to the site-specific conditions. In addition, foundation design and commissioning checks address potential failure from extreme events such as earthquakes or extreme wind loadings, as well as frequency tuning of the different parts of the structure to avoid failure from dynamic resonance.

7.4.6.1 Turbine Certification

Because wind has been a central source of power in Europe for decades, European manufacturers have been required to meet rigid standards verifying their design criteria, operational characteristics, supervision of construction, transportation, erection, commissioning, testing, and servicing. In Europe, Germanischer Lloyd (GL), Det Norske Veritas (DNV), Wind Test GmbH, and Risø (Denmark) are independent testing laboratories that administer regulations for the design, approval, and certification of wind energy conversion systems. There are no well-established testing agencies in the United States that offer the amount of experience, scrutiny, and know-how as the European agencies. For these reasons, the Project will implement turbine technology that, at a minimum, complies with the European standards.

Wind turbines designed to European standards have proven to be the most reliable wind energy systems over the past two decades. In Europe, certification

pursuant to these standards is mandatory for both permitting and financing. Partly because of these verification programs, lenders in Europe view wind energy equipment in the same way lenders in the United States might view the purchase of heavy construction equipment. The Project will implement only turbines that have achieved this type of certification by a reputable and experienced third-party verification institute such as GL, DNV, WindTest, or Risø and that demonstrate a minimum design life of at least 20 years.

7.4.6.2 Braking System

The electrically actuated individual blade pitch systems act as the main braking system for the WTG. Braking under normal operating conditions is accomplished by feathering the blades out of the wind. Any single-feathered rotor blade is designed to slow the rotor, and each rotor blade has its own back-up battery bank to provide power to the electric drive in the event of a grid line loss. Three independent back-up battery packs or spring units are provided to power each individual blade pitch system to feather the blades and shut down the machine in the event of a grid line outage or other fault. Having all three blades outfitted with independent pitch systems provides redundancy of individual blade aerodynamic braking capability.

The WTG is also equipped with a mechanical brake located at the output (high-speed) shaft of the gearbox. This brake is only applied immediately on certain emergency stops (E-stops). The brake also prevents rotation of the machinery, as required by certain service activities.

7.4.6.3 Turbine Control

The WTGs can be controlled automatically or manually from either the control panel located inside the nacelle or from a personal computer located in a control box at the bottom of the tower. Control signals also can be sent from a remote computer via a SCADA system, with local lockout capability provided at the turbine controller.

Using the tower-top control panel, the machine can be stopped, started, and turned out of the wind. Service switches at the tower top prevent service personnel at the bottom of the tower from operating certain turbine systems while service personnel are in the nacelle. To override any machine operation, stop buttons located in the tower base and in the nacelle can be activated to stop the turbine in the event of an emergency.

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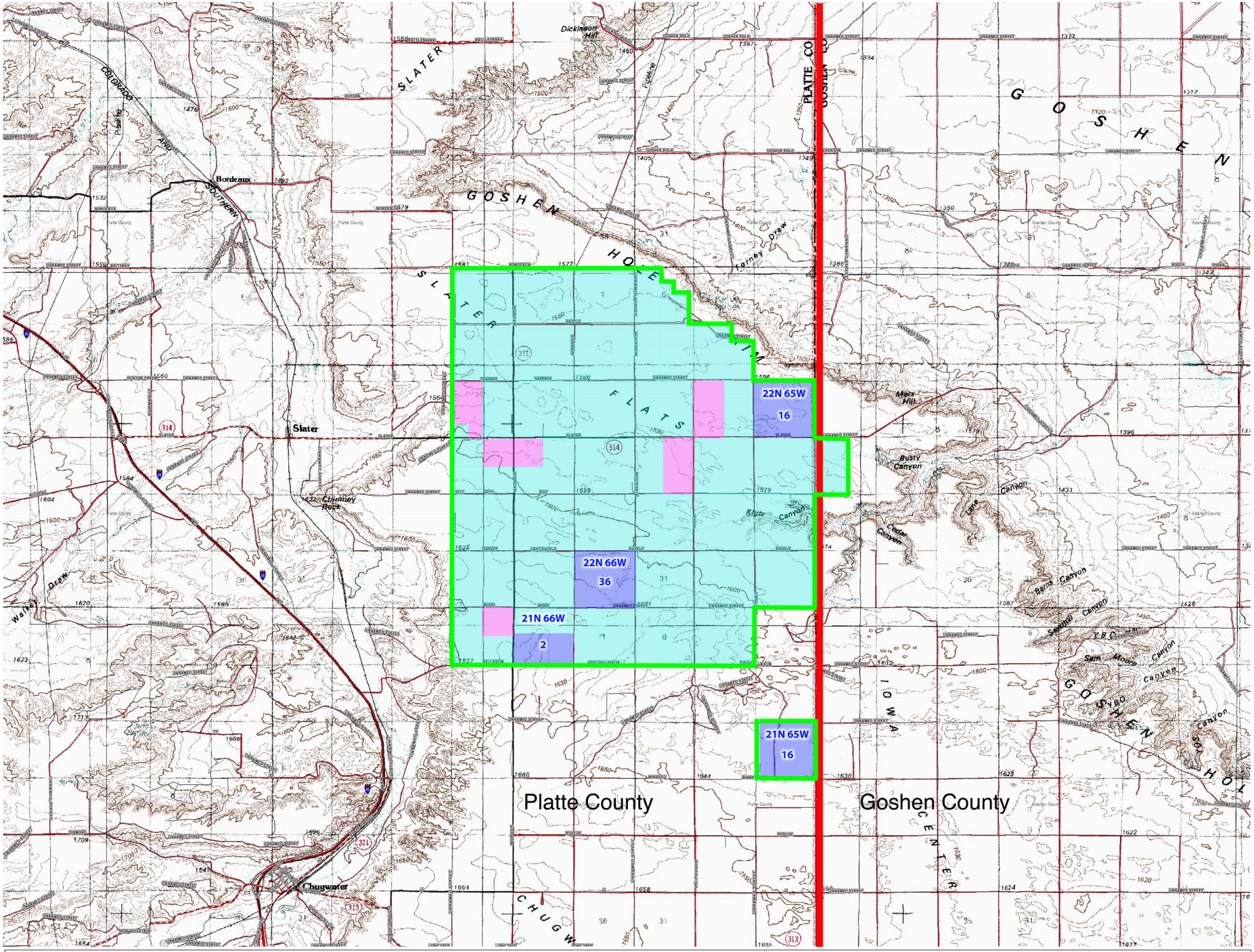
Appendix A

Site Location



Legend

N

1 mile

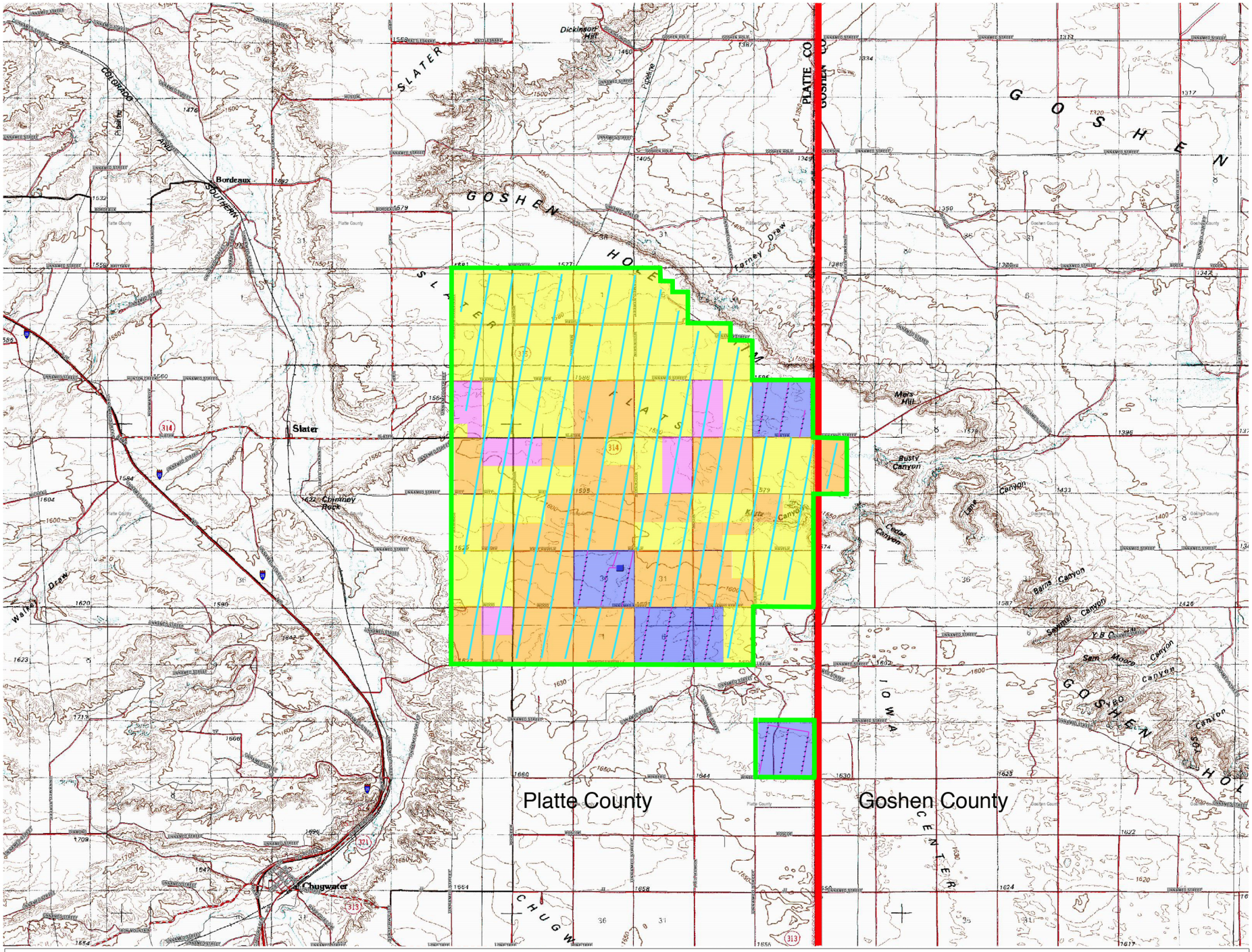
- State Land
- Private Land
- Potential Acquisitions
- County Line
- Project Boundary

Land Ownership

Chugwater Flats Energy Project

Novelution Wind, LLC

Source: USGS 2009



Legend

N

1 mile

- Future Phases Proposed Turbine and Access Road Corridor
- Phase One
- Outside Project Boundary
- Potential Acquisitions
- Phase Two
- Phase Three
- County Line
- Project Boundary
- Turbine Access Road
- Substation
- Turbine

Project Phases

Chugwater Flats Energy Project

Novelution Wind, LLC

Source: USGS 2009

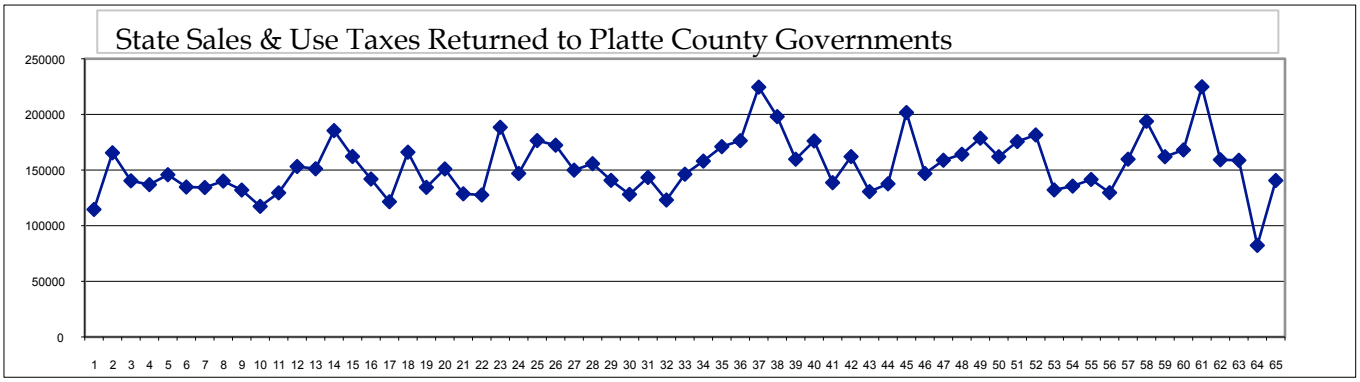
Appendix B

Impact Assistance Funds

History of State Sales and Use Tax Given to Platte County Governments

		State Share Given			State Share Given to Muni's			Total
Serial	Month	Sales	Use	Total	Sales	Use	Total	
1	July 04	7,484	1,006	8,490	76,540	29,572	106,112	114,602
2	Aug 04	9,481	1,288	10,769	126,088	28,636	154,724	165,493
3	Sep 04	9,563	1,154	10,717	100,909	28,723	129,632	140,349
4	Oct O4	9,469	1,191	10,660	96,427	29,819	126,246	136,906
5	Nov 04	9,574	1,269	10,843	104,307	30,659	134,966	145,809
6	Dec 04	8,867	1,258	10,125	94,727	29,887	124,614	134,739
7	Jan 05	8,355	1,109	9,464	93,715	31,143	124,858	134,322
8	Feb 05	8,790	1,075	9,865	94,205	36,021	130,226	140,091
9	Mar 05	9,463	1,213	10,676	91,382	29,963	121,345	132,021
10	Apr 05	7,937	1,198	9,135	77,148	31,091	108,239	117,374
11	May 05	8,803	1,538	10,341	80,140	39,061	119,201	129,542
12	Jun 05	9,067	1,396	10,463	102,846	39,873	142,719	153,182
13	Jul 05	8,826	1,360	10,186	96,074	44,865	140,939	151,125
14	Aug 05	12,632	1,481	14,113	136,870	34,461	171,331	185,444
15	Sep 05	9,888	1,376	11,264	100,837	50,105	150,942	162,206
16	Oct 05	10,916	1,405	12,321	106,337	23,262	129,599	141,920
17	Nov 05	9,938	1,368	11,306	87,478	22,741	110,219	121,525
18	Dec 05	9,563	13,997	23,560	102,555	39,937	142,492	166,052
19	Jan 06	9,787	1,215	11,002	103,496	19,923	123,419	134,421
20	Feb 06	10,354	1,401	11,755	91,248	47,984	139,232	150,987
21	Mar 06	11,278	1,292	12,570	91,615	24,474	116,089	128,659
22	Apr 06	8,183	1,272	9,455	83,819	34,300	118,119	127,574
23	May 06	11,122	1,975	13,097	119,474	55,846	175,320	188,417
24	Jun 06	10,816	1,769	12,585	109,269	25,092	134,361	146,946
25	Jul 06	10,093	1,490	11,583	110,964	53,931	164,895	176,478
26	Aug 06	13,627	1,993	15,620	115,320	41,412	156,732	172,352
27	Sep 06	11,189	1,703	12,892	109,699	27,343	137,042	149,934
28	Oct 06	11,142	1,902	13,044	108,665	34,029	142,694	155,738
29	Nov 06	12,830	2,162	14,992	99,297	26,456	125,753	140,745
30	Dec 06	10,324	1,843	12,167	84,141	31,822	115,963	128,130
31	Jan 07	11,386	1,669	13,055	98,803	31,456	130,259	143,314
32	Feb 07	10,828	1,817	12,645	81,393	29,036	110,429	123,074
33	Mar 07	10,294	1,589	11,883	92,490	41,896	134,386	146,269
34	Apr 07	9,693	1,453	11,146	114,966	31,953	146,919	158,065
35	May 07	11,388	1,856	13,244	98,275	59,511	157,786	171,030
36	June 07	9,788	1,602	11,390	105,523	59,456	164,979	176,369
37	July 07	11,474	2,114	13,588	180,834	30,102	210,936	224,524
38	Aug 07	13,025	2,222	15,247	125,067	57,679	182,746	197,993
39	Sept 07	11,891	1,256	13,147	115,138	31,463	146,601	159,748
40	Oct 07	12,785	3,145	15,930	120,330	39,902	160,232	176,162
41	Nov 07	12,082	1,593	13,675	97,872	27,114	124,986	138,661
42	Dec 07	10,766	1,877	12,643	100,660	48,769	149,429	162,072
43	Jan 08	11,392	1,718	13,110	86,632	30,864	117,496	130,606
44	Feb 08	11,804	2,113	13,917	100,603	23,129	123,732	137,649
45	Mar 08	10,642	1,724	12,366	137,990	51,336	189,326	201,692
46	Apr 08	10,536	1,433	11,969	90,649	44,282	134,931	146,900
47	May 08	11,511	1,930	13,441	97,910	47,466	145,376	158,817
48	Jun 08	11,133	1,662	12,795	102,344	49,060	151,404	164,199
49	Jul 08	10,965	1,522	12,487	119,844	46,289	166,133	178,620

50	Aug 08	14,612	2,100	16,712	115,032	30,244	145,276	161,988
51	Sept 08	14,123	1,889	16,012	124,444	35,137	159,581	175,593
52	Oct 08	14,052	1,856	15,908	132,797	32,845	165,642	181,550
53	Nov 08	12,312	1,900	14,212	78,308	39,632	117,940	132,152
54	Dec 08	11,859	1,842	13,701	92,942	28,934	121,876	135,577
55	Jan 09	11,288	1,706	12,994	91,649	36,883	128,532	141,526
56	Feb 09	13,358	1,930	15,288	88,381	26,022	114,403	129,691
57	Mar 09	10,727	2,230	12,957	95,209	51,592	146,801	159,758
58	Apr 09	10,488	2,030	12,518	85,657	95,640	181,297	193,815
59	May 09	8,875	1,573	10,448	83,454	68,097	151,551	161,999
60	June 09	9,626	1,453	11,079	93,900	63,087	156,987	168,066
61	July 09	10,466	2,048	12,514	164,829	47,476	212,305	224,819
62	Aug 09	10,582	1,413	11,995	108,504	38,743	147,247	159,242
63	Sep 09	10,278	1,687	11,965	111,221	35,587	146,808	158,773
64	Oct 09	9,847	1,539	11,386	92,519	**(21,602)**	70,917	82,303
65	Nov 09	10,918	1,469	12,387	94,265	33,945	128,210	140,597
						Base period amount:		154,681



Forecast of Impact Assistance Payments

Serial	Month	*SLR*	BasePeriod	**Impact Assistance**
66	Dec 2009	*164,852*	154,681	***0***
67	Jan 2010	*165,197*	154,681	***0***
68	Feb 2010	*165,541*	154,681	***10,861***
69	Mar 2010	*165,886*	154,681	***11,205***
70	Apr 2010	*166,231*	154,681	***11,550***
71	May 2010	*166,575*	154,681	***11,895***
72	June 2010	*166,920*	154,681	***12,239***
73	July 2010	*167,264*	154,681	***12,584***
74	Aug 2010	*167,609*	154,681	***12,928***
75	Sep 2010	*167,953*	154,681	***13,273***
76	Oct 2010	*168,298*	154,681	***13,617***
77	Nov 2010	*168,643*	154,681	***13,962***

10,343 Forecast average monthly impact assistance
124,115 Forecast yearly impact assistance

1.023 Forecast growth rate in sales & use tax

Appendix C

Public Involvement

Local Elected Officials Contacted for the Chugwater Flats Energy Project Open Houses

Platte County

Name	Title	City
Steve Keigley,	Platte County Sheriff	Wheatland
Eric Jones,	County Attorney	Wheatland
Al Wright,	County Assessor	Wheatland
Jean Dixon,	County Clerk	Wheatland
Susan Artery,	Clerk of Court	Wheatland
Linda Bowen,	County Treasurer	Wheatland
Dan Kirkbride,	County Commissioner	Chugwater
Tim Milliken,	County Commissioner	Glendo
Terry Stevenson,	County Commissioner	Wheatland
Marty Shepard,	Chairman of Planning and Zoning,	Wheatland

Economic Development

Dan Brecht,	Director	Wheatland
Bruce Heimbuck,	Guernsey Community Development Director	Guernsey
Anja Bendel,	High Plains Economic Development District	Wheatland/Chugwater
Philip Ellis,	President of Chugwater Economic Development	Chugwater

Chugwater Economic Development Board Members: Laura Pevick, Holly Crowley, LaCynda Fortik; Anja Bendel, Secretary; Kate Koch, Treasurer; Dennis Baker, Vice-President; Philip Ellis, President.

Lisa Johnson, Executive Director Goshen County Economic Development Torrington

Goshen County

Donald J. Murphy,	Sheriff	Torrington
James Lowry,	Undersheriff	Torrington
Jim Hudselson,	County Commissioner	Torrington
Robert Ward,	County Commissioner	Torrington
Ross Newman,	County Commissioner	Torrington
Connie Addy,	County Clerk	Torrington
Debra Surratt,	County Assessor	Torrington
Sharon Knaub,	County Treasurer	Torrington
Patrick Korell,	County Attorney	Torrington
Bonnie Petsch,	Clerk of Court	Torrington

Goshen County Towns

Bob Willard, Mayor	Yoder
Cheryl Rutt, Town Clerk	Yoder
Elsie Gray, Town Council	Yoder
Norman Feagler, Town Council	Yoder
Bob Oaks, Town Council	Yoder
Malcolm Woster, Town Council	Yoder
Justin Burkart, Fire Chief	Yoder
Mark Marshall, Mayor	LaGrange
Cathy Stoddard, Town Clerk	LaGrange
Tracy Pragnell, Public Works Director/ Fire Chief	LaGrange
Cameron McCoy, Town Council	LaGrange
John Beightol, Town Council	LaGrange
Michael Huseby, Town Council	LaGrange
Joel Tremain, Town Council	LaGrange
Leroy Schafer, Mayor	Torrington
Sandy Pittman, Town Clerk	Torrington
Randy Adams, Town Council	Torrington
J.B. Hays, Town Council	Torrington
Ted Kinney, Town Council	Torrington
Rick Vonbert, Town Council	Torrington
Jim Eddington, City Attorney	Torrington
Jim Foster, Director of Utilities, Safety, Sanitation	Torrington
Billy Janes, Chief of Police	Torrington
Rick Donbraska, Fire Chief	Torrington
Russell Walter, Mayor	Lingle
Marty Coyle, Town Clerk	Lingle
David Kendall, Town Clerk	Lingle
Joe Welte, Town Council	Lingle
Al Unburzagt, Town Council	Lingle
Tami Brown, Town Council	Lingle
Dawn Gilchriest, Town Council	Lingle
Kenny Elwood, Chief of Police	Lingle
Joe Wells, Fire Chief	Lingle

Platte County Towns

Dean Hensel, Mayor	Wheatland
Bob Shoemaker, Town Council	Wheatland
Alan Madsen, Town Countil	Wheatland
Jason Evans, Town Council	Wheatland
Sue Sluss, Town Council	Wheatland

Chief of Police, Randy Chesser	Wheatland
Fire Chief Scott Scheller	Wheatland
Carol Ash, Mayor	Chugwater
Karen Guidice, Town Clerk	Chugwater
Belinda Witt, Town Council	Chugwater
Kelly Cronk, Town Council	Chugwater
John Burns, Town Council	Chugwater
Mary Bloom, Town Council	Chugwater
Tim Ash, Fire Chief	Chugwater
Kit West, Ambulance	Chugwater
Jay B. Collins, Mayor	Glendo
Brenda Hagen, Town Clerk	Glendo
Guylene Creach, Town Clerk	Glendo
Charles Haggerty, Town Clerk	Glendo
Susan Juschka, Town Clerk	Glendo
William Krist, Town Clerk	Glendo
Travis Dickau, Fire Chief	Glendo
Michael Pettigrew, Mayor	Guernsey
Leslie Zynda, Town Clerk/Treasurer	Guernsey
Kathy Montgomery, Deputy Clerk	Guernsey
Joseph Michaels, Town Council	Guernsey
Cindy Frederick, Town Council	Guernsey
Penny Wells, Town Council	Guernsey
Audrey Brown, Town Council	Guernsey
Chief of Police,	Guernsey
Jim Wagner, Fire Chief	Guernsey
Gaynell Flaherty, Town Clerk	Hartville
Darrell Offe, Mayor	Hartville
Pete Zovi, Town Council	Hartville
Daniel A. Offe, Town Council	Hartville
Bruce Sturdivant, Town Council	Hartville
Ronald Cooley, Town Council	Hartville
Royce Brumbliss, Fire Chief	Hartville
Richard Monger, Mayor	Fort Laramie
Kelli Jankewicz, Town Clerk	Fort Laramie
Sandra Hill, Town Council	Fort Laramie
Steve Fullmer, Town Council	Fort Laramie
Erich Kurtz, Town Council	Fort Laramie
Paul Schoolcraft, Town Council	Fort Laramie
Laura Knollman, Chief of Police	Fort Laramie
Pete Howes, Fire Chief	Fort Laramie

Letter Mailed to Local Elected Officials that were Contacted for the Chugwater Flats Energy Project Open Houses

Novelution Wind, LLC

215 First Street Chugwater, WY 82210 P.O. Box 172 Chugwater, WY 82210 Phone: 1 307 422 3346 www.novelutionwind.com

Novelution Wind, LLC
PO Box 172
215 First Street
Chugwater, Wy 82210
Office Phone: 307 422 3346

November 23, 2009

Subject: Chugwater Flats Energy Project

Dear Community Leader:

Novelution Wind, LLC (Novelution Wind), a local Wyoming based company, has a strong commitment to clean, reliable, renewable power and domestic energy security. Wyoming is one of the nation's leading states for wind generation potential and Novelution Wind looks forward to helping Wyoming diversify its energy generation mix by developing this renewable resource. Therefore, we are pleased to announce the proposed Chugwater Flats Energy Proect ("Project") to be located in Platte County, approximately 8 miles northeast of Chugwater.

Phase I of the Project is a planned 135-MW wind energy generation facility to be developed by Chugwater Flats Energy Project, LLC, which is owned by Novelution Wind. The Project will be built on approximately 5,000 acres of leased, privately-owned and state lands, and plans to utilize GE 1.5- MW model wind turbines which are made in the USA.

Novelution Wind currently plans to begin construction of the facility in the Spring of 2010. Novelution Wind intends to submit an application for a Section 109 permit under the Industrial Development Information and Siting Act in January 2010.

The Project will be designed and operated to maximize Wyoming's tremendous wind resource while minimizing impacts to the natural and man-made environment. The Project will undergo reviews by federal, state and local regulatory agencies, and Novelution Wind is currently working towards obtaining all necessary permits and approvals for the Project. A major step in this process is the review and approval through the Wyoming Industrial Siting Council. As part of the Industrial Siting Permit application process, we invite you to participate in an informational meeting that will provide additional details concerning the proposed Project and allow the local community to ask questions and comment on the Project. Novelution Wind will host two Open Houses. These Open Houses will be held in Chugwater and Wheatland respectively on different days to give people both geographic and scheduling flexibility. Novelution Wind intends to present identical information at both the Chugwater and Wheatland meetings.

Novelution Wind, LLC

215 First Street Chugwater, WY 82210 P.O. Box 172 Chugwater, WY 82210 Phone: 1 307 422 3346 www.novelutionwind.com

Meeting details for the Open Houses are as follows:

Date: Thursday, December 3, 2009
Time: 6-8pm
Place: Chugwater, Wy
Chugwater Community Center
311 Second Street

Date: Friday, December 4, 2009
Time: 6-8pm
Place: Wheatland, Wy
First State Bank Meeting Room
1405 16th Street

If you cannot attend the meeting, you may provide input by visiting our office in Chugwater, giving us a call, writing us a letter, or sending an e-mail. Our contact information is listed below:

Novelution Wind, LLC
PO Box 172
215 First Street
Chugwater, Wy 82210
Office Phone: 307 422 3346
Fax: 307 422 3347
info@novelutionwind.com

Please be sure to include your name and address with your comments so that we may follow-up with you at a later date.

We look forward to working with you on this Project, and hope to see you soon at the introductory meeting.

Sincerely,

Jessica L. Laviolette

Jessica Laviolette
Manager
Novelution Wind, LLC

AWEA
BUSINESS MEMBER

Newspaper Advertisement Sized to Cover a Quarter Page and Published in Five Local Newspapers to Invite the Public to the CFEP Open Houses

Chugwater Flats Energy Project

Please join us.

We'd like to hear from you.

Novelution Wind, LLC, a local Wyoming based company, has a strong commitment to the environment, to supporting sustainable energy use, and to supporting the development of America's domestic energy security. In support of that commitment, we have begun the process of obtaining the necessary approvals and making preparations to construct a new wind energy project in Platte County, Wyoming.

We would like you to be well informed of plans for this proposed wind farm project. To help, Novelution Wind, LLC will be hosting two public Open Houses.

Thu., Dec. 3
Chugwater Community Center
311 Second St.
Chugwater, WY
6 - 8 p.m.

Fri., Dec. 4
First State Bank Meeting Room
1405 16th St.
Wheatland, WY
6 - 8 p.m.

We hope to see you there and look forward to working with you as this wind project progresses!

Questions or comments?
Feel free to call or visit our office right here in Chugwater!
PO Box 172 • 215 First Street • Chugwater • 307-422-3346

Sign-in Sheets from Chugwater and Wheatland Open Houses

Chugwater, Wy Dec 3, 2009

Chugwater Flats Energy Project

Novelution Wind, LLC

Name and Agency:	Address:	Phone:
John Voight	Box 6 Chug. 82210	422-3465
Lorene Jackson	1715 WS Hwy 313 Chug 82210	422-3436
Dan Jackson	" " " "	" "
Dennis Baker	286 Rd 5	
Terry Stevenson	1100 21st St Wheatland 82201	307-331-8521
John Baker	655 Baker Rd Chugwater	422-3566
Noalen Beaver	1160 Hwy 313 Chug	422-3414
Elmer Beaver	" "	" "
DAN KIRKBRIDE PLATTE COUNTY	P.O. Box 37 CHUGWATER, WY 82210	307/331-2265
Karen Guidice Town	Box 243 Chugwater, WY 82210	307/422-3493

Chugwater, Wy Dec 3, 2009

Chugwater Flats Energy Project

Novelution Wind, LLC

Name and Agency:	Address:	Phone:
Shelby Fortik	1301 Sh HWY 313 Chugwater	307-422-3320
LaLynda Fortik	1301 State Hwy 313 Chugwater	422-3320
Dan Fortik	1301 State Hwy 313 Chugwater	422-3320
Philip Ellis	~~POB~~ 214 Chugwater, WY 82210	422-3450
CLAYTON ENIX	1516 STATE HWY 313 CHUGWATER	422-2330
Stanley Thompson	1100 Slater Rd Wheatland	422-3305
Beaufel Thompson	" " "	" "
K.B. Goddard	PRAIRIE VALLEY ELECTRIC Po. Box 520 TORRINGTON, WY 82240	307.532.8658
Anja Bendel High Plains Ec Dev Dist.	PO Box 988 Wheatland, WY 82201	307.331.0012
Carol Ash Town of Chugwater	PO Box 3, Chugwater	307-630-3411
Kelly Cronk Town	Box 23 Chugwater	307 331-2787

Wheatland, Wy Dec 4, 2009

Chugwater Flats Energy Project

Novelution Wind, LLC

Name and Agency:	Address:	Phone:
Alexander Cook	149 Yokland Rd	322-2278 x2
Rob Heilbaum	360 Pioneer Rd	422-3593
Newton Russell	264 Slater Rd	422-3569
Jim Anderson Sen. Dist #2	92 Running Dutchman Rd Glenrock, Wy.	436-9618
Robert T Catchpole	1103 14th	322 5224
Tim Olind	1457 Zorn Wheatland	331 4582
Keith Blow	614 9th Street Wheatland,	322-8130
William A Duncan Harmony Heights Wind Energy	1505 Deer Creek Rd Fort Laramie	837-2696
Allen Haygood	PO Box 278 Glendo Wy 82213	
Fred Myer	4016 Hwy 34 Wheatland Wy	331-2922
Planning Dennis Becker	PO Box 728 Wheatland	322-1341

Wheatland, Wy Dec 4, 2009

Chugwater Flats Energy Project

Novelution Wind, LLC

Name and Agency:	Address:	Phone:
Bob Whitton		331-4606
Jay Collins (Mayor Glendo)	PO Box 72 Glendo Wy	735 4042

Keynote Presentation (Mac equivalent of Power Point) Given During Open Houses and Platte County Commissioners Meeting

NOVELUTION
WIND

Overview

NOVELUTION WIND

- Introduction to Novelution Wind, LLC
- Introduction to Wind Energy
- Industrial Siting Act Information
- Other Permitting Information
- Project Overview
- Environmental Impact
- Construction Logistics
- Economic Benefits
- Questions

Introduction to Novelution Wind, LLC

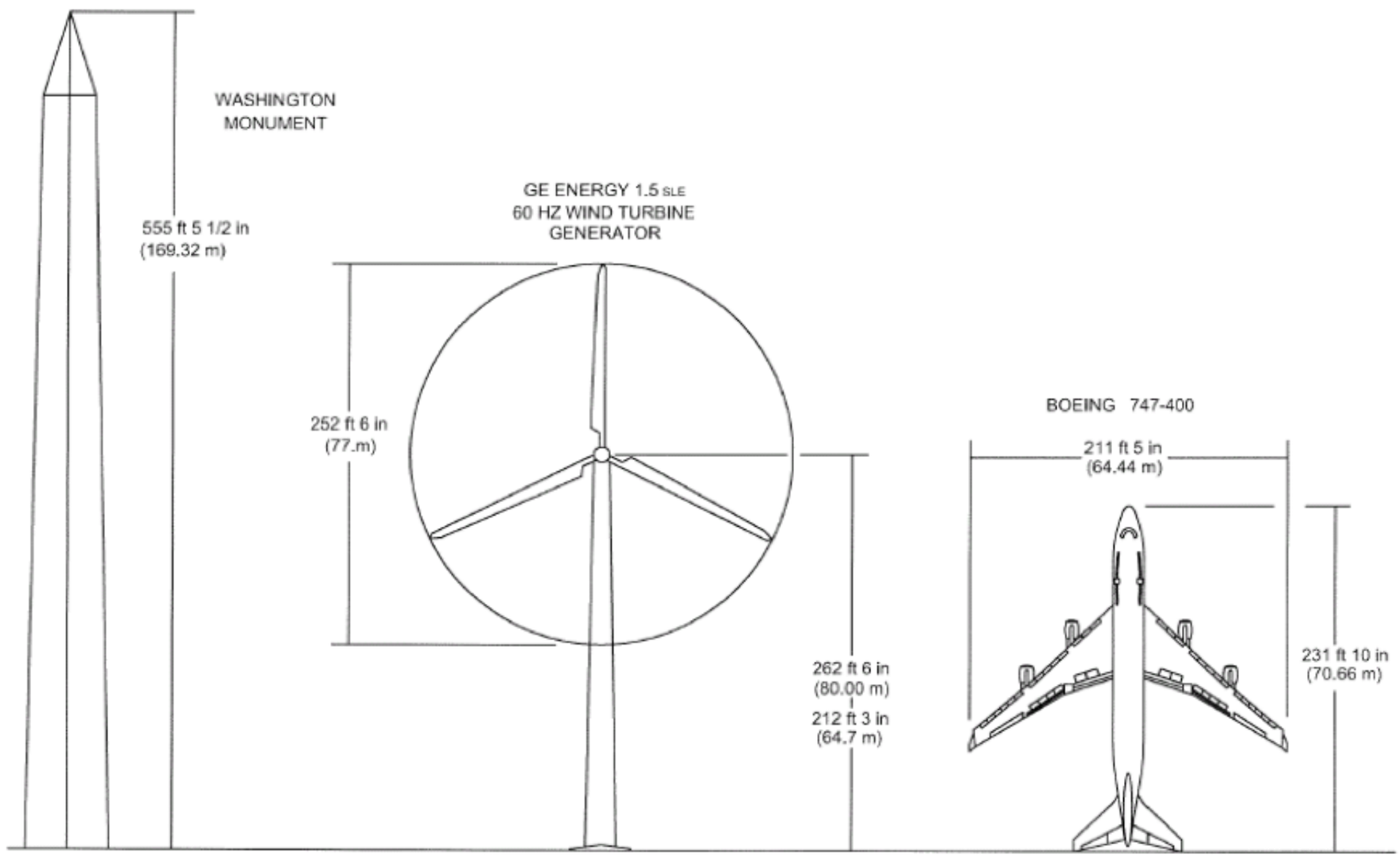
NOVELUTION WIND

- Novelution Wind, LLC
  - is a Wyoming Company
  - owned by U.S. Citizens
  - operated by U.S. Citizens
  - office headquarters in Chugwater, Wyoming
  - business member of AWEA

AWEA BUSINESS MEMBER

Introduction to Wind Energy

NOVELUTION WIND



NOVELUTION WIND

Wind Turbine Generator Features

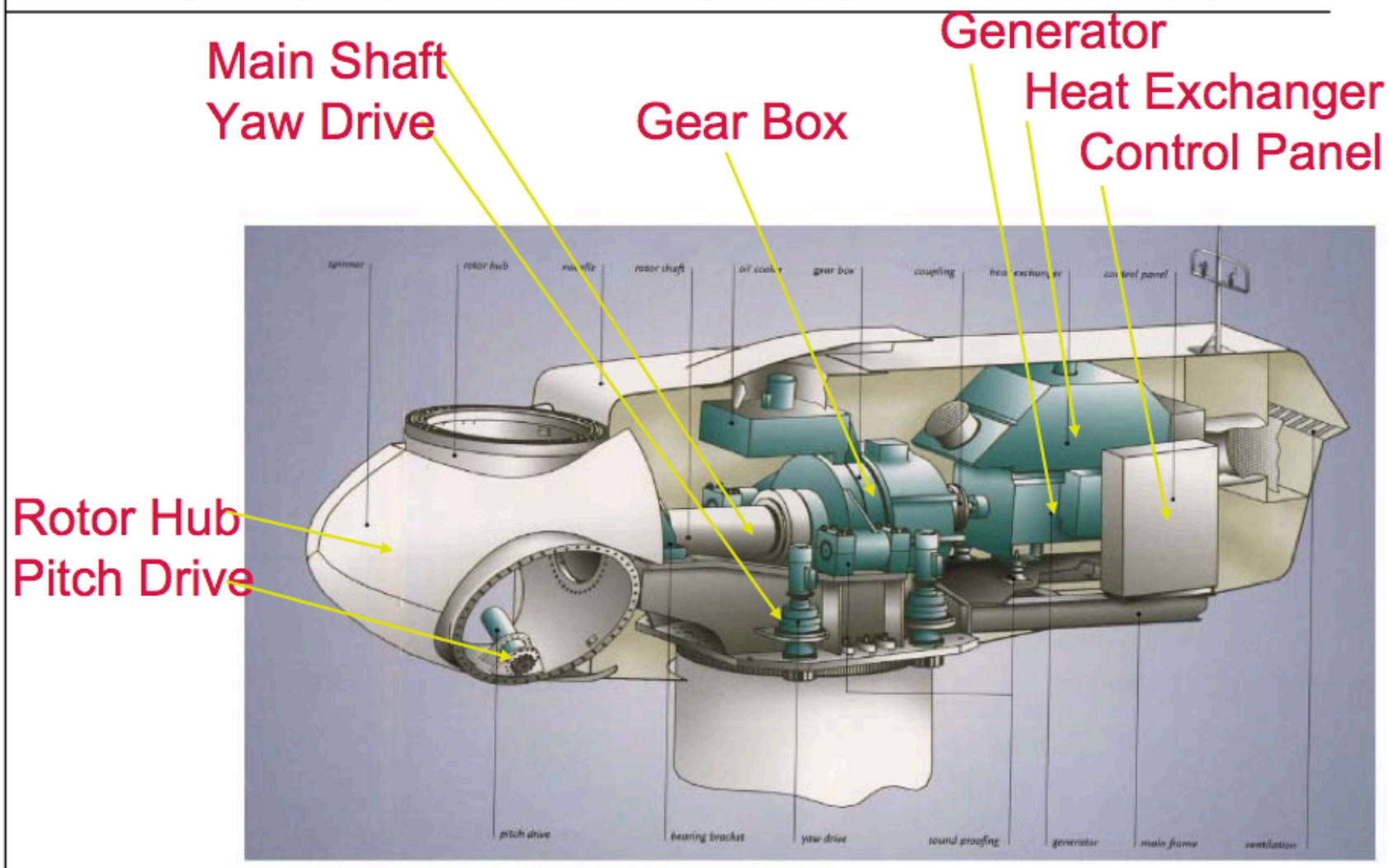
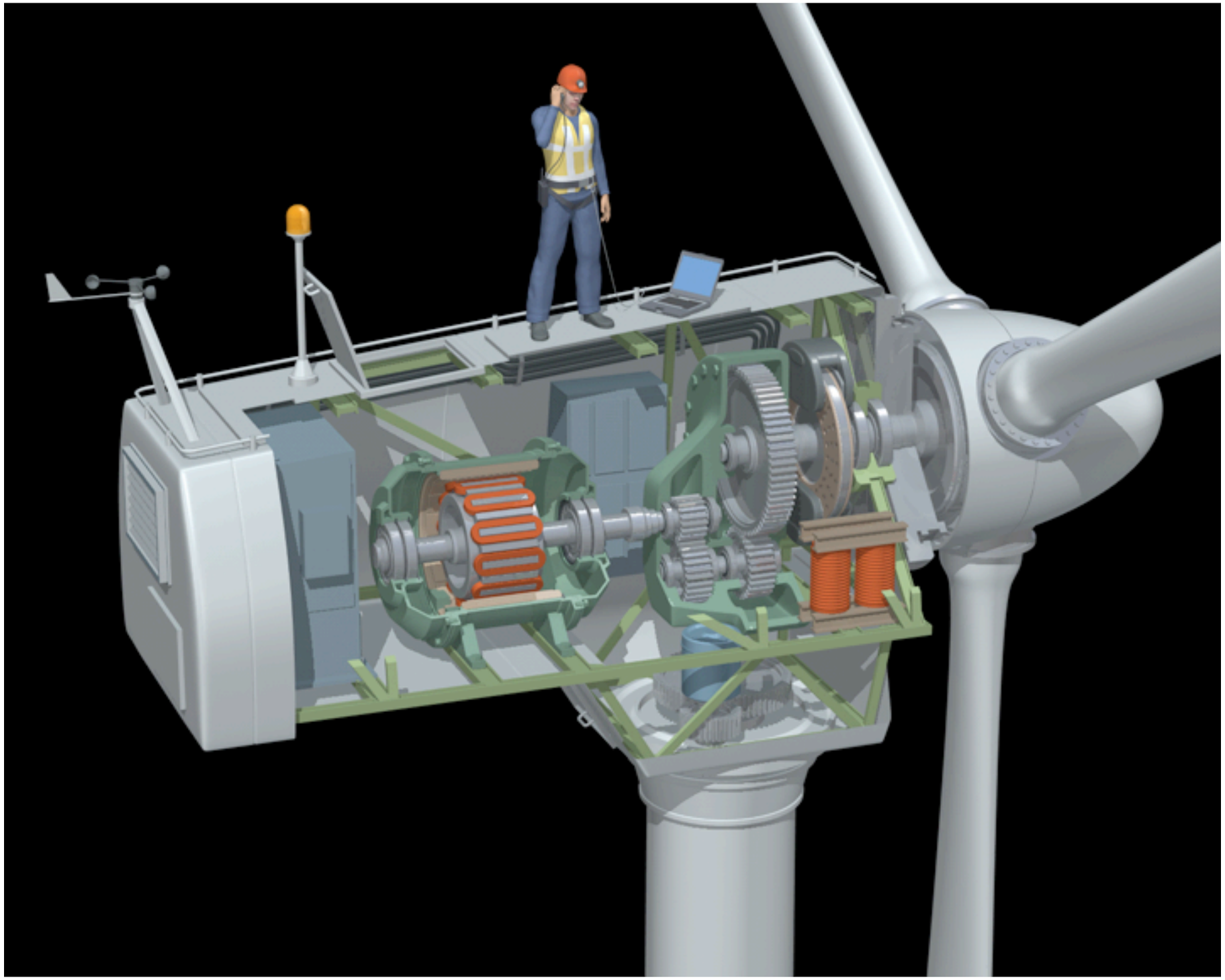


Fig. 2: GE Energy 1.5SLE 60Hz Wind Turbine Nacelle Layout

Introduction to Wind Energy

NOVELUTION WIND



Introduction to Wind Energy

NOVELUTION WIND

Facts for an Average 1.5 MW turbine

- Turbine Height: 250 feet
- Blade Length: 120 feet
- Blade Tip Height: 380 feet
- Tower Weight: 276,000 Pounds
- Nacelle Weight: 125,000 Pounds
- Rotor Weight: 79,000 Pounds
- Foundation: 52’ X 8’ deep, 1,272,000 Pounds

Image: http://www.gepower.com

Introduction to Wind Energy

NOVELUTION WIND

Facts for 1,500 kW Wind Turbine

- Rotors start to turn in 7 mph winds
- Power production beings at 9 mph winds
- Rated power is at about 30 mph winds
- High wind shutdown is 60 mph
- The blade turns slowly, 20 rpm, but the tips of the blades are traveling at speeds in excess of 140 mph

Introduction to Wind Energy

NOVELUTION WIND

How much electricity does a wind turbine generate?

- A 1.5 MW turbine generates 1.5 MWh of electricity in one full hour at full capacity
- Most 1.5 MW turbines generate at full capacity when winds are between 30 mph and 60 mph
- 24 hrs/day x 365 days/year = 8,760 hours in a year
- 13,140 MWh at full capacity

NOVELUTION WIND

The Importance of Capacity Factor

$$\text{Capacity Factor} = \frac{\text{Actual amount of power produced over time}}{\text{Power that would have been produced if turbine operated at maximum output 100\% of the time}}$$

Annual Production for a 1.5 MW Wind Turbine

- Full Capacity Factor 13,140 MWh/year
- 40% Capacity Factor 5,256 MWh/year
- 30% Capacity Factor 3,942 MWh/year
- 20% Capacity Factor 2,628 MWh/year

Capacity Factor Source: AWEA

Introduction to Wind Energy

NOVELUTION WIND

How much energy is in a Megawatt hour?

- 1 MWh = 1,000 kWh

- The average U.S. household uses 11,040 kWh of electricity per year*

20% Capacity Factor	2,628 MWh/year	238 Houses
30% Capacity Factor	3,942 MWh/year	357 Houses
40% Capacity Factor	5,256 MWh/year	476 Houses

* U.S. Department of Energy

Introduction to Wind Energy

NOVELUTION WIND

Q: How does wind compare to other energy sources in terms of wildlife impact?

A: The list of effects of other energy sources on wildlife and the environment is long and varied. While wind farms and their construction have local impacts, the use of wind energy largely avoids more serious and detrimental impacts.

	Wind	**Nuclear**	**Coal**	**Natural Gas**
Global Warming Pollution	None	None	Yes	Yes
Air Pollution	None	None	Yes	Limited
Mercury	None	None	Yes	None
Minning/Extraction	None	Yes	Yes	Yes
Waste	None	Yes	Yes	None
Water Use	None	Yes	Yes	Yes
Habitat Impacts	Yes	Yes	Yes	Yes

Please find AWEA's fact sheet on Wind Energy and Wildlife here:
http://www.awea.org/pubs/factsheets/Wind_Energy_and_Wildlife_Mar09.pdf

Introduction to Wind Energy

NOVELUTION WIND

Percent of Annual Bird Fatalities by Source

Wind Turbines	less than .2%
Communication Towers	2.5%
Pesticides	7%
Vehicles	7%
High Tension Lines	8%
Cats	10%
Buildings and Windows	55%
Other	10%

Source: Wallace P. Erickson, Western Ecosystems Technology, Inc.

Industrial Siting Act Information

NOVELUTION WIND

Industrial Siting Permit is required for this project.

Under the Wyoming Industrial Development Information and Siting Act, permits are required for all projects with construction costs of 178.9M or more. The permit application involves a review of economic, social, and environmental impacts due to the development of the project.

Novelution Wind, LLC and its consultants are working with all appropriate federal, state, and local agencies and stakeholders.

Industrial Siting Act Information

NOVELUTION WIND

Permit Application Schedule

December 2009	Meetings with public officials
December 2009	Open House meetings
January 2010	Application submittal
March 2010	Public hearing
April 2010	Target date for permit issuance

Other Permitting Information

NOVELUTION WIND

- FAA Notice of Proposed Construction
- Army Corps of Engineers-Waters of the U.S.
- Consultations with U.S. Fish and Wildlife Service
- Consultations with Wyoming Game and Fish Department
- Consultations with Wyoming State Historic Preservation Office
- Platte County Special Use Permit

Project Overview

NOVELUTION WIND

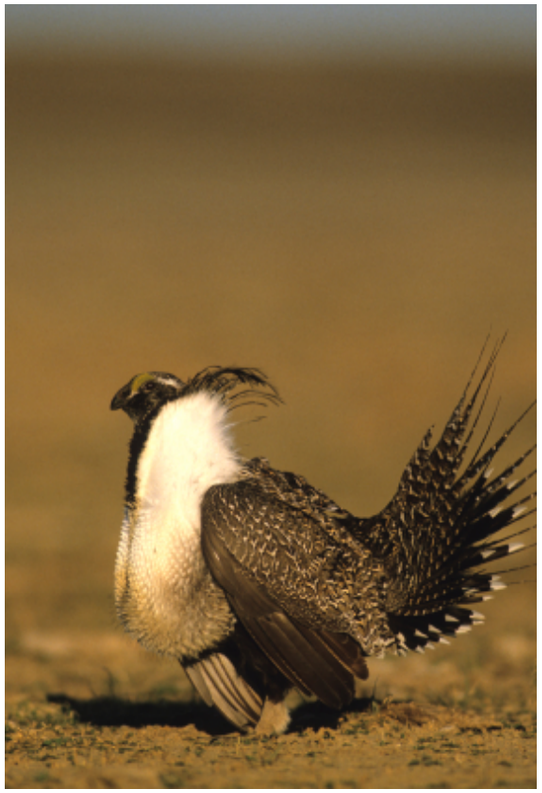
Phase 1	116 Turbines	174 MW
Phase 2	370 Turbines	555 MW
Phase 3	314 Turbines	471 MW

Environmental Impact

NOVELUTION WIND

Novelution Wind, LLC is working with all appropriate state, county, and local agencies to consider potential impacts of construction and wind power operations.

These considerations include:



- Conducting seasonal surveys to determine wildlife impacts
- Assessing wildlife habitats, nesting areas, greater sage-grouse leks
- Surveying any potential wetlands and waters of the U.S.

We will use this information to develop acceptable impact avoidance and mitigation plans

Construction Logistics

Transportation of construction materials will be determined by construction contractors.

Vehicles are expected to use I-25 and exit at Chugwater and continue onto 313 Lone Tree Road.

Minimal amounts of solid waste will be generated at the site.

A waste management contractor will remove solid waste.

Local workforce and vendors will be used to the greatest extent possible.

Economic Benefits

NOVELUTION WIND

Construction Jobs

Resource requirements will ramp up from about 35 construction employees in the 2nd quarter of 2010 to a peak of approximately 380 employees.

Ongoing Operational Jobs

Approximately 64 full time employees will be hired to perform ongoing operational duties at the site upon completion.

Economic Benefits

NOVELUTION WIND

Extended economic benefits to the surrounding communities:

The project will generate business for local hotels, motels, restaurants, gas stations, pharmacies, grocery stores, hardware stores, machine shops, electrical supply companies, repair firms, and equipment rental companies.

The project will generate clean, renewable, inexhaustible energy for the USA.

Questions?

NOVELUTION
WIND

Thank you
for joining us!

Posters Used During Open Houses

Novelution Wind, LLC

A Wyoming Wind Company

PO Box 172
215 First Street
Chugwater, Wy
82210

Office: 307-422-3346
Fax: 307-422-3347
info@novelutionwind.com
www.novelutionwind.com

Novelution Wind, LLC

A Wyoming Wind Company

PO Box 172
215 First Street
Chugwater, Wy
82210

Office: 307-422-3346
Fax: 307-422-3347
info@novelutionwind.com
www.novelutionwind.com

Appendix D
Agency Correspondence

Dave Freudenthal, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

John Corra, Director

September 17, 2009

Thomas Laviolette, President
Novelution Wind LLC
215 First Street, PO Box 17
Chugwater, WY 82210

NOTICE OF JURISDICTION – PERMIT REQUIRED
INDUSTRIAL SITING COUNCIL DOCKET DEQ/ISC-09-04

Dr. Laviolette:

On September 16, 2009 it was determined that the wind power project in Platte County called, *Chugwater Flats Energy Project*, requires a permit from the Industrial Siting Council. The basis for the jurisdiction is W. S. 39-12-106. Copies of the Industrial Development Information and Siting Act and Rules of the Industrial Siting Council are enclosed.

An application consists of

- 60 hard-bound copies and a .pdf file of a compliant application document;
- payment of the application fee; and
- a letter of transmittal from an officer with the authority to bind the corporation.

Dr. Tom Schroeder, 307-777-7369 is available to explain application requirements and to provide information to assist with the preparation of the application.

Sincerely,

Todd Parfitt
Industrial Siting Administrator

cc: John Corra, Director, Department of Environmental Quality
Tom Schroeder, Industrial Siting Division
Files

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

September 17, 2009

Thomas Laviolette, President
Novelution Wind LLC
215 First Street, PO Box 17
Chugwater, WY 82210

Industrial Siting Council Application Fee
Docket DEQ/ISC 09-04 Chugwater Flats Energy Project

Dr. Laviolette:

We look forward to the permit application for the *Chugwater Flats Energy Project* in Platte County.

W.S. 35-12-109(b) and the Rules and Regulations of the Industrial Siting Council provide that the applicant pay a fee to be determined by the Director based upon the estimated cost of investigating, reviewing, processing of the application, serving notice and holding a hearing. That fee was calculated to be $43,084.00 for a section 109 application. The fee is to be remitted at the time of the delivery of the permit application.

At the conclusion of the permit processing, a full financial accounting of the use of the funds and the return of excess funds will be made to the applicant, according to W.S. 35-12-109(c).

Sincerely,

Todd Parfitt
Industrial Siting Administrator

cc: John Corra, Director, Department of Environmental Quality
Tom Schroeder, Industrial Siting Division
Files

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
WYOMING REGULATORY OFFICE
2232 DELL RANGE BOULEVARD, SUITE 210
CHEYENNE WY 82009-4942

REPLY TO
ATTENTION OF

October 22, 2009

Wyoming Regulatory Office

Dr. Thomas Laviolette, CMfgE
Novelution Wind, LLC
P.O. Box 172
Chugwater, Wyoming 82210

Dear Dr. Laviolette:

This letter is in response to your request we received on June 18, 2009, for a jurisdictional determination concerning construction of wind turbines and associated infrastructure at property near Chugwater. We requested additional information on the project layout and on October 16, 2009, you provided a map depicting the approximate location of 179 turbines. The project area as shown on the map includes approximately 4,480 acres located in Sections 5, 6, 8, 9, 16, and 17, Township 21 North, Range 65 West; and Section 36, Township 22 North, Range 66 West, Platte County, Wyoming.

The U.S. Army Corps of Engineers regulates the placement of dredged and fill material into wetlands and other waters of the United States as authorized primarily by Section 404 of the Clean Water Act (33 U.S.C. 1344). The term "waters of the United States" has been broadly defined by statute, regulation, and judicial interpretation to include all waters that were, are, or could be used in interstate commerce such as streams, reservoirs, lakes and adjacent wetlands. The Corps regulations are published in the *Code of Federal Regulations* as 33 CFR Parts 320 through 332. Information on Section 404 program requirements in Wyoming can be obtained from our web site at https://www.nwo.usace.army.mil/html/od-rwy/Wyoming.htm

We have reviewed the documentation you provided, including the 1:100,000 scale topographic map, and determined that the only aquatic resources within the project area are ephemeral and intermittent streams identified as Box Elder Creek and unnamed tributaries. Box Elder Creek flows into Glomill Reservoir, which is located in a closed basin that has no outlet. Therefore, none of these streams are tributaries of interstate waters and they do not support any other forms of interstate commerce so the project area does not contain any waters of the United States as defined at 33 CFR Part 328.3(a).

In the March 28, 2000, edition of the *Federal Register* (Vol. 65, No. 60), the Corps implemented an administrative appeals process for jurisdictional determinations. This letter serves as an approved jurisdictional determination. The landowner and other affected parties may appeal any determination to the Northwestern Division Appeals Officer, Mr. David Gesl, by

obtaining a Notification of Administrative Appeal Options and Process (NAO) form at our web site. Section "D" of the NAO explains the procedures for appeal. The NAO form must be submitted to Mr. Gesl at the address shown on the NAO form prior to **December 21, 2009**, or forfeit the right to an administrative appeal.

As a result of this analysis, we have determined that Department of the Army authorization is not required for any activities associated with construction of wind turbines within the project area because it would not require any discharges of fill material into waters of the United States. This determination does not eliminate the requirement to obtain any other applicable federal, state, tribal, or local permits that may be required.

Please be aware that the landowner is responsible for obtaining authorization prior to commencing with any activities that include a discharge of dredged or fill material in waters of the United States. Many activities with minor impacts are authorized by general permits known as nationwide permits. On March 12, 2007, nationwide permits were published in Part II of the *Federal Register* (Vol. 72, No. 47). Those permits are available for a period of 5 years, until March 18, 2012. A copy of the *Federal Register* publication and other information on the nationwide permits are available from our web site. A standard (individual) permit would be required if the loss of waters of the United States would exceed nationwide permit criteria. A permit application (ENG Form 4345) is also available from our web site.

Thank you for your interest in cooperating with requirements of the U.S. Army Corps of Engineers' regulatory program. Please contact Mr. Thomas Johnson at (307) 772-2300 and reference file NWO-2009-02690 if you have any questions.

Sincerely,

Matthew A. Bilodeau
Program Manager
Wyoming Regulatory Office

The Omaha District, Regulatory Branch, Wyoming Regulatory Office is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete a Customer Service Survey found on our web site at https://www.nwo.usace.army.mil/html/od-rwy/survey.htm Paper copies of the survey are also available upon request for those without Internet access.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

In Reply Refer To:
ES-61411/W.22/WY09TA0110

MAR 06 2009

Ms. Deirdre Laviolette
VP Resource Planning
Novelution Wind LLC
1001 Oakwood Rd
Ortonville, Michigan 48462

Dear Ms. Laviolette:

Thank you for your electronic mail of February 2, 2009, regarding Novelution Wind's proposed Platte County wind development. The proposed wind development will encompass approximately 2,720 acres in portions of T20N, R65W, section 16; T21N, R65W, sections 5, 6, 16; and, T22N, R 65W, section 16, within 10 miles to east and northeast of Chugwater, Wyoming.

You have requested information regarding species listed under the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). In response to your request, the U.S. Fish and Wildlife Service (Service) is providing you with recommendations for protective measures for threatened and endangered species in accordance with the Act. We are also providing recommendations concerning migratory birds in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703 and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956, as amended, 70 Stat. 1119, 16 U.S.C. 742a-742j".

In accordance with Section 7(c) of the Act, we have determined that the following species or their designated habitat may be present in the proposed project area. We would appreciate receiving information as to the current status of each of these species within the proposed project area.

Listed, Proposed, Candidate Species and their Designated and Proposed Critical Habitat that may be in the proposed Project Area

SPECIES	STATUS	Expected Occurrence
Blowout Penstemon (*Penstemon haydenii*)	Endangered	Sand dunes
Colorado butterfly plant (*Gaura neomexicana coloradensis*)	Threatened	Wet meadows and riparian areas
Colorado Butterfly Plant Critical Habitat	Designated	Specific wet meadows and riparian areas in Laramie and Platte Counties (see 50 CFR 17.96(a))
Platte River species (5 species)	Endangered / Threatened	Downstream riverine habitat of the Platte River
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	Seasonally moist soils and wet meadows of drainages below 7,000 feet

Blowout penstemon: Blowout penstemon (*Penstemon haydenii*) is a perennial herb with stems less than 12 inches tall. The inflorescence is 2-6 inches long and has 6-10 compact whorls of milky-blue to pale lavender flowers. Blowout penstemon was listed as endangered on October 1 1987. The plant's current known range in Wyoming consists of the Ferris dunes area in northwest Carbon County where the plant is restricted to two habitat types: steep, northwest facing slopes of active sand dunes with less than 5 percent vegetative cover; and on north facing sandy slopes, on the lee side of active blowouts with 25-40 percent vegetative cover. Recent surveys have indicated that systematic surveys are warranted in all lower elevations (below 6700 feet) in Wyoming where sand blowout features are located.

Blowouts are formed as strong winds deposit sands from the windward side of a dune to the leeward side and result in a sparsely vegetated crater-like depression. Associated vegetation includes blowout grass, thickspike wheatgrass, lemon scurfpea, Indian ricegrass and western wheatgrass. Threats to the plant occur when sand dunes are removed or overly disturbed by vehicular traffic. Known populations in Wyoming are found between 6680-7440 feet. Recent surveys (June 2002) indicate that surveys may be warranted in some lower elevations where active sand blowout features occur. Surveys should be conducted from mid-June to early-July when flowering occurs by knowledgeable botanists trained in conducting rare plant surveys. The Service does not maintain a list of "qualified" surveyors, but we can refer those wishing to become familiar with the blowout penstemon to experts who can provide training/services.

Colorado butterfly plant: The Colorado butterfly plant (*Gaura neomexicana coloradensis*) is a perennial herb endemic to moist soils in wet meadows of flood plain areas in southeastern Wyoming, north-central Colorado, and extreme western Nebraska between elevations of 5,000 and 6,400 feet. These plants are often found in low depressions or along bends in wide meandering stream channels a short distance upslope of the actual channel. Threats to the plant include non-selective herbicide spraying, haying and mowing schedules that inhibit the setting of seed, land conversion for cultivation and competition from noxious weeds. The low numbers

and limited distribution contribute to the plant's vulnerability. Surveys should be conducted during flowering season which normally occurs in August although some temporal variability exists from site to site and from year to year depending on annual climatic conditions. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. The Service does not maintain a list of "qualified" surveyors but can refer those wishing to become familiar with the Colorado butterfly plant to experts who can provide training/services.

Platte River Species: If the proposed action may lead to consumptive use of water or have the potential to affect water quality in the Platte River System, there may be impacts to threatened and endangered species inhabiting the downstream reaches of this river system. For more information on how to seek ESA coverage for water-related activities through the Platte River Recovery Implementation Program, please visit our web site at: http://www.fws.gov/platteriver.

Ute ladies'-tresses: Ute ladies'-tresses (*Spiranthes diluvialis*) is a perennial, terrestrial orchid, 8 to 20 inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. *S. diluvialis* typically blooms from late July through August; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October. *S. diluvialis* is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams where it colonizes early successional point bars or sandy edges. The elevation range of known occurrences is 4,200 to 7,000 feet (although no known populations in Wyoming occur above 5,500 feet) in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where *S. diluvialis* have been found typically range from fine silt/sand, to gravels and cobbles, as well as to highly organic and peaty soil types. *S. diluvialis* is not found in heavy or tight clay soils or in extremely saline or alkaline soils. *S. diluvialis* seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open. Surveys should be conducted by knowledgeable botanists trained in conducting rare plant surveys. *S. diluvialis* is difficult to survey for primarily due to its unpredictability of emergence of flowering parts and subsequent rapid desiccation of specimens. The Service does not maintain a list of "qualified" surveyors but can refer those wishing to become familiar with the orchid to experts who can provide training or services.

Species and Areas of Concern

Black-tailed prairie dog: The Service is currently conducting a review to determine if the black-tailed prairie dog (*Cynomys ludovicianus*) warrants listing under the Act (73 FR 73211). Black-tailed prairie dogs may be found scattered in remnant populations throughout much of the range that it once occupied. A significant portion of existing occupied habitat rangewide occurs in a few large complexes. We encourage you to protect all prairie dog towns for their value to the prairie ecosystem and the many species that rely on them. We further encourage you to analyze potentially disturbed prairie dog towns for their value to future black-footed ferret reintroduction.

Wetlands/Riparian Areas: Wetlands may be impacted by the proposed project. Wetlands perform significant ecological functions which include: (1) providing habitat for numerous aquatic and terrestrial wildlife species, (2) aiding in the dispersal of floods, (3) improving water quality through retention and assimilation of pollutants from storm water runoff, and (4)

recharging the aquifer. Wetlands also possess aesthetic and recreational values. If wetlands may be destroyed or degraded by the proposed action, those wetlands in the project area should be inventoried and fully described in terms of their functions and values. Acreage of wetlands, by type, should be disclosed and specific actions should be outlined to avoid, minimize, and compensate for all unavoidable wetland impacts.

Riparian or streamside areas are a valuable natural resource and impacts to these areas should be avoided whenever possible. Riparian areas are the single most productive wildlife habitat type in North America. They support a greater variety of wildlife than any other habitat. Riparian vegetation plays an important role in protecting streams, reducing erosion and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. In view of their importance and relative scarcity, impacts to riparian areas should be avoided. Any potential, unavoidable encroachment into these areas should be further avoided and minimized. Unavoidable impacts to streams should be assessed in terms of their functions and values, linear feet and vegetation type lost, potential effects on wildlife, and potential effects on bank stability and water quality. Measures to compensate for unavoidable losses of riparian areas should be developed and implemented as part of the project.

Plans for mitigating unavoidable impacts to wetland and riparian areas should include mitigation goals and objectives, methodologies, time frames for implementation, success criteria, and monitoring to determine if the mitigation is successful. The mitigation plan should also include a contingency plan to be implemented should the mitigation not be successful. In addition, wetland restoration, creation, enhancement, and/or preservation does not compensate for loss of stream habitat; streams and wetlands have different functions and provide different habitat values for fish and wildlife resources.

Best Management Practices (BMPs) should be implemented within the project area wherever possible. BMPs include, but are not limited to, the following: installation of sediment and erosion control devices (e.g., silt fences, hay bales, temporary sediment control basins, erosion control matting); adequate and continued maintenance of sediment and erosion control devices to insure their effectiveness; minimization of the construction disturbance area to further avoid streams, wetlands, and riparian areas; location of equipment staging, fueling, and maintenance areas outside of wetlands, streams, riparian areas, and floodplains; and re-seeding and re-planting of riparian vegetation native to Wyoming in order to stabilize shorelines and streambanks.

MBTA and BGEPA Prohibitions

The MBTA, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations and does not require intent to be proven. This prohibition of take also covers any active migratory bird nest as well as nest trees. Section 703 of the MBTA states, "Unless and except as permitted by regulations ... it shall be unlawful at any time, by any means or in any manner, to ... take, capture, kill, attempt to take, capture, or kill, or possess ... any migratory bird, any part, nest, or eggs of any such bird..." Under MBTA implementing regulations (50 CFR 10.12), "Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" and possession is defined to include "that condition of facts under which one can exercise his power over a corporeal thing at his pleasure to the exclusion of all other persons."

Protective measures to help reduce possible impacts to migratory birds and other raptors should be implemented. For example, 7 CFR § 1724.52 allows for deviations from construction

standards for raptor protection, provided that structures are designed and constructed in accordance with *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* published by the Edison Electric Institute/Raptor Research Foundation. The regulation requires that such structures be in accordance with the National Electrical Safety Code and applicable State and local regulations. For further guidance, also see the *Avian Protection Plan Guidelines: A Joint Document Prepared By The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service in 2005* which is currently available on line at http://aplic.org. Since this project will involve construction of new power lines, the Service urges the project proponent to take these precautionary measures.

In addition to the protections afforded eagles under the MBTA, the BGEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing. Under the BGEPA take "includes also pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC § 668c).

The term "disturb" under the BGEPA has recently been defined as: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (72 FR 31332). In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

General Wind Energy Development Recommendations

The Service supports the development of alternative energy sources. However, if not appropriately designed and sited, wind energy developments may negatively impact wildlife and their habitats through (1) mortality of birds and bats while in flight due to rotating turbine blades or collision with wind turbines, meteorological towers, tower wires, and associated structures, and (2) fragmentation and disturbance of habitat that can contribute to declines of local populations of birds, bats and other wildlife.

In addition to continuing coordination with our office, we also recommend that early in the planning process you contact the Wyoming Game and Fish Department (WGFD) and, if Federal lands, funding or authorization (e.g., Western Area Power Administration) are involved, the Federal agency that has jurisdiction. Our office is best able to provide effective guidance to you when we are provided with the full build-out plans of a wind energy project as well as detailed information concerning biological information available for the site. This biological information should include the biological survey data, survey protocols used, and resource information concerning areas in close proximity to the proposed project site. Coordination with WGFD can be particularly important if surveys indicate that the proposed site is used by bat or other species identified as a Species of Greatest Conservation Need, such as the greater sage-grouse (see the Final Comprehensive Wildlife Conservation Strategy for Wyoming).

The Service makes every effort to raise public awareness regarding the possible presence of migratory birds and the risk of violating the MBTA and BGEPA and to inform the public of factors that will help minimize the likelihood that violations will occur. Any mitigation recommended by the Service for wind energy development would be voluntary on the part of the developer unless made a condition of a Federal license or permit. Our recommendations do not supersede provisions of the MBTA and the BGEPA. Also, they do not supersede other Federal, State, or local regulations that may be more restrictive. Assessing legal compliance with the MBTA or the BGEPA and its implementing regulations is ultimately the authority and responsibility of the Service's law enforcement personnel.

On July 10, 2003, we released *Interim Guidance on Avoiding and Minimizing Impacts to Wildlife from Wind Turbines* (available at www.fws.gov). These voluntary siting guidelines are intended to assist developers in avoiding and minimizing impacts from wind turbines to wildlife and their habitats. They are based on the best information available and were developed by a team of Federal, State, university, and wind energy industry biologists. We encourage you to use and incorporate these guidelines as you develop your wind energy project.

Once a potential wind development site location is identified, we also recommend that you search for all available bat and migratory bird data within several miles of the project area (e.g., contact Bureau of Land Management, U.S. Forest Service, WGFD). Sites should be avoided that have high raptor concentrations, large numbers of raptor nests, or confirmed migration corridors for migratory birds and/or bats.

When information suggests that a proposed wind facility may present an increased collision hazard for migratory birds or bats, such as proximity to areas where birds or bats are highly concentrated (e.g., riparian areas) or other sensitive areas, we recommend selecting sites elsewhere for the wind energy development when possible or alternatively designing the site layout and equipment to help ensure that bird and bat mortality risks are low (e.g., birds rarely enter the planned rotor-swept area).

Determining what turbine layout and equipment will effectively reduce the likelihood of migratory bird and bat mortalities will depend upon having a thorough understanding of the normal movement patterns of birds and bats in and around the project site (e.g., the movements between daily roosting, feeding, or nesting sites as well as migration routes). For example, turbine alignments that separate birds from their daily roosting, feeding, or nesting sites or that are located in high bird use areas could significantly increase the risk of collisions. In addition, grouping turbines rather than spreading them widely, and orienting rows of turbines parallel to known bird movements will likely reduce the potential for collisions.

We encourage you to ensure that the data you collect is robust (e.g., generally we recommend multiple years of data) and that the migratory bird and bat site-use data is adequately factored into the project layout. If the environmental resource data you have collected to date does not provide the level of detail needed to determine normal bird (including nocturnal) and bat movements, we would recommend that you collect that information prior to determining turbine locations.

Other general turbine siting measures that may reduce the incidence of bird collisions include:

- Setback turbines from rim/ridge edges, avoid locating turbines in a dip or pass in a ridge;

- Avoid siting turbines in or near prairie dog colonies or where there is a prevalence of pocket gopher burrows;
- Minimize the rotor swept-area and use turbines with slower rotor-tip speeds to help reduce potential for collisions;
- Avoid management practices that may result in attracting raptors to the turbine locations such as high densities of prey animals (e.g., rodents, rabbits) and ensuring responsible animal husbandry (e.g., removing carcasses, fencing out cattle);
- Mark meteorological tower guy wires for bird detection to prevent collisions;
- Follow Avian Power Line Interaction Committee recommendations to avoid collision mortality and electrocution of raptors and other avifauna;
- Enforce vehicle speed limits for the site to reduce the potential for road-kills and remove any carrion from project roads.

After implementing measures to avoid and minimize impacts to wildlife, we encourage you also to consider ways to compensate any habitat impacts that are not avoided by replacing or providing substitute resources or environments.

We appreciate your efforts to ensure the conservation of Wyoming's fish and wildlife resources. We look forward to reviewing the biological survey protocols, survey results, and continuing to work with you as additional details of the proposed project become available. In addition to technical assistance, the Service offers a number of tools designed to facilitate management of private lands while achieving conservation benefit. Information regarding these programs may be found at http://www.fws.gov/endangered/landowner/index.html.

If you have questions regarding this letter or your responsibilities under the Act and/or other authorities or resources described above, please contact either Clark McCreedy of my office at the letterhead address or phone (307) 772-2374, extension 228, or Scott Covington at extension 246.

Sincerely,

Scott Hicks

for Brian T. Kelly
Field Supervisor
Wyoming Field Office

cc: WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4610

Web site: http://gf.state.wy.us

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December 21, 2009

WER 12006
Novelution Wind LLC
Correspondence Follow-Up
Chugwater Flats Wind Energy Project
Platte County

Deirdre Laviolette
Manager Environmental Planning
PO Box 172
Chugwater, WY 82210

Dear Ms. Laviolette:

The staff of the Wyoming Game and Fish Department has reviewed the correspondence for Chugwater Flats Wind Energy Project in Platte County. The following comments are based upon the information we have received to date. We reserve the right to modify our recommendations pending the review of your completed application which will trigger the Industrial Siting Council public commenting process.

Terrestrial Considerations:

The project area overlies mule deer crucial winter range in legal Sections 28 and 27. This portion of the winter range primarily relies on agricultural fields adjacent to drainages that extend to the east. As a relatively minor component of this particular winter range and due to the influence of agricultural practices we suspect impacts should be minimal. However, we do recommend Novolution site turbines outside of the winter range or, at a minimum, minimize turbine placement and road networks through this portion of the project area.

Prairie sharptailed grouse also occur in this area. We recommend applying our standard stipulations of ¼ mile buffer around known sharptailed grouse leks.

Aquatic Considerations:

If the project is designed such that no runoff occurs to the west toward Chugwater Creek, we do not anticipate the need to conduct geomorphological monitoring of Chugwater Creek.

To the best of our knowledge, it appears that Boxelder Creek is a closed system, i.e. does not connect to perennial water that contains fish. Therefore, we do not anticipate the need to monitor culverts and 5% or greater roads.

Reptiles and Amphibians

As the location of the roads and towers become known, we recommend that Novelution Wind contact the Department to discuss the specific monitoring protocols for reptiles and amphibians as outlined in a letter dated October 5, 2009.

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Rick Huber, Staff Aquatic Biologist, at 307-777-4558, Mike Snigg, Laramie Region Fisheries Supervisor, at 307-745-5180 Ext.236, and Zack Walker, Herpetologist, at 307-473-3406.

Sincerely,

for

John Emmerich
Deputy Director

JE: MF: sg

cc: USFWS
Mike Snigg, Laramie Region
Zack Walker, Casper Region

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

Aug 17, 2009

Thomas Laviolette
Novolution Wind. LLC
Vice President Operations
215 1st Street P.O. Box 172
Chugwater, WY 82210

Re: Class II Cultural Resource Inventory, Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1) (SHPO File # 0509JRD018)

Dear Mr. Laviolette:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We have reviewed the project report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). Based on the information provided in the Class II field inventory we concur with your finding that no historic properties, as defined in 36 CFR § 800.16(l)(1), will be affected by the project as planned.

We recommend the Novelution Wind, LLC allow the project to proceed in accordance with state laws subject to the following stipulation:

> If any cultural materials are discovered during construction, work in the area shall halt immediately, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence on your finding of no historic properties affected. Please refer to SHPO project #0509JRD018 on any future correspondence regarding this project. If you have any questions, please contact Joseph Daniele, Archaeologist/Review and Federal Consultation at 307-777-8793.

Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office

TDS
Collection Service Inc
TDS
Torrington, WY
Est. 1972
Phone (307) 532-7515
FAX (307) 532-3467
golson@tdswy.com
FED. ID. #83 0277738
P.O. Box 696
Torrington, WY 82240
www.tdswy.com

12/2/09
Dr. Thomas Laviolette, CmfgE
President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

Dear Tom,

TDS Collection Service Inc., which also operates the TDS landfill in Torrington Wyoming, has the authorization from the State of Wyoming Department of Environmental Quality to handle solid waste from the Chugwater area both residential and light commercial. This is what you will be generating.

We currently service the town of Chugwater and surrounding rural areas for solid waste service and roll off boxes, which you will be utilizing for your waste stream.

TDS can also provide Port A Pots at any quantity that you desire. If necessary, we can add or delete that quantity as the job progresses.

When the time allows if you can please provide us with the location and miles from Chugwater, we can then quote you pricing as required.

You can visit us at our website www.tdswy.com. If you have any further questions Carla Sims will be your contact. She can be reached at 307-532-7515 or her email address at csims@tdswy.com

We look forward to doing business with you.

Sincerely,

Gary D. Olson
President
TDS Collection Service Inc.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009

OCT 15 2009

In Reply Refer To:
ES-61411/WY09FA0230

Ms. Deirdre Laviolette
Manager, Environmental Planning
Novelution Wind, LLC
P.O. Box 172
Chugwater, WY 82210

Dear Ms. Laviolette:

Thank you for your correspondence of September 3, 2009, and received in our office on September 3, regarding Novelution Wind's proposed Chugwater Flats wind development (Chugwater Flats). Chugwater Flats will encompass approximately 2,720 non-contiguous acres near the town of Chugwater, Wyoming, in primarily 6 tracts of privately owned lands (T20N, R65W, S16; T21N, R65W, S5, S6, and S16; T22N, R66W, S36; T22N, R65W, S16). We understand that the project will entail installation of wind turbines and associated infrastructure consisting of roads and transmission lines. Previous coordination with the Wyoming Ecological Services Field Office (WYESFO, Service) has included our initial correspondence of March 6, 2009 (WY09TA0110).

You have requested our review of the Terracon Resource Report (Project No. 24097709) addressing federally listed species that may occur in proximity to the Novelution Wind project, Platte County, Wyoming. The Terracon report also addresses additional species of concern which may occur within the Novelution Wind project area. We understand that you have plans to also conduct both an avian and bat study at the site.

We appreciate the opportunity to provide technical assistance on the planning for this wind energy development. Understanding how wildlife uses a prospective wind energy site is critically important to informing site selection and layout. The greater the avian and bat use of a site, generally the greater the potential for wildlife impacts from wind energy development and operation. Riparian and wetland habitats can be particularly important for wildlife. Raptor use of the project area will also be influenced by the respective locations of nesting and foraging habitats.

Pending the results of detailed studies concerning how wildlife use the site, we encourage that preliminary site plans incorporate conservative assumptions about which areas within the planning area may not be suitable for wind energy development because of a greater potential for wildlife impacts (e.g., anticipate siting turbines away from wetlands and riparian areas and other key wildlife habitats).

In response to your request, the Service is providing you with information concerning threatened and endangered species in accordance with the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The Service believes that the Terracon Resource Report provided sufficient information to determine the effects of this project to federally listed species. Based on this information, it is unlikely that the proposed work will adversely affect any threatened or endangered species. If, however, the proposed project may lead to consumptive use of water, as may be possible with operation of a concrete batch plant, or have the potential to affect water quality in the Platte River System, there may be impacts to threatened and endangered species inhabiting the downstream reaches of this river system. For more information on how to seek Act coverage for water-related activities through the Platte River Recovery Implementation Program, please visit our web site at: http://www.fws.gov/platteriver.

This project should be re-analyzed if new information reveals effects of the action that may affect listed species or designated or proposed critical habitat (1) in a manner or to an extent not considered in this letter, (2) if the action is subsequently modified in a manner that causes an effect to a listed species or designated or proposed critical habitat that was not considered in this letter, and/or (3) if a new species is listed or critical habitat is designated that may be affected by this project.

In our March 6, 2009, letter we provided recommendations concerning migratory birds in accordance 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. We also provided recommendations for project planning related to other species of concern and wetlands. We are providing some additional detail concerning recommendations for pre-construction surveys.

For raptors, surveys should document species, important use areas, frequency of occurrence, locations of nest sites, roost sites, migration corridors and forage areas (e.g., prairie dog or ground squirrel colonies). We recommend conducting surveys to assess raptor territories on and near the planning area, including foraging patterns. Surveying and mapping prey bases within the planning area can also assist in assessing raptor foraging patterns. For example, for prairie dogs and ground squirrels, counts of active burrows can yield an index to the local population, which may be useful in determining the status of the colony and its importance for raptor conservation.

Because many raptors are particularly sensitive to disturbance during the breeding season, we recommend spatial and seasonal buffer zones to protect nest sites. The buffers serve to minimize visual and auditory impacts associated with human activities near nest sites. Nest site buffers are an important aspect of raptor conservation, but for the development of facilities that have an increased potential to cause direct raptor mortality (i.e., wind turbines, guyed towers,

transmission lines), a generic or standard buffer size may not be sufficient to ensure compliance with the MBTA and Eagle Act. For example, decisions regarding siting of turbines are best informed with comprehensive site data (topography, vegetation), location of resources (prey), and behavioral patterns of raptors in the project area (foraging, soaring, roosting). Applying buffers without this information may not be sufficient to reduce the incidence of avian collisions (e.g., if turbines are placed outside a generic nest disturbance buffer, but inadvertently still within areas of normal daily or migratory bird movement patterns).

Bats: Bat fatalities have been documented at most wind facilities in North America where surveys for bats have been conducted. The majority of bats killed by wind turbines are species that rely on trees as roosts and migrate long distances. Peak numbers of bat fatalities coincide with autumn migration and mating seasons. Understanding the impacts of wind farm development on bats and developing measures to minimize mortality are high priority issues in Wyoming, where there are currently no federally-listed bat species.

Acoustic monitoring, mist netting at water sources, and roost searches are important components of effective bat surveys. In order to better inform bat surveys, we recommend first identifying potentially suitable habitat for bats on and near the project site. Wetlands, as noted in the Terracon Resource Report, are an essential component of suitable bat habitat. Habitat surveys are key to effectively evaluating bat use of a site. According to the National Research Council (2007), to "adequately assess risks to both resident and migratory bats, ultrasonic bat detectors should be deployed to monitor flight activity within the rotor-swept area of a wind turbine and with the capacity to detect bats flying from different directions." Acoustic monitoring in suitable project area habitats, in addition to monitoring in the rotor swept zone, may identify local concentrations of bats which may subsequently inform turbine siting.

We appreciate your efforts to ensure the conservation of Wyoming's fish and wildlife resources. In addition to technical assistance, the Service offers a number of tools designed to facilitate management of private lands while achieving conservation benefit. Information regarding these programs may be found at http://www.fws.gov/endangered/landowner/index.html.

We would welcome the opportunity to review the detailed wildlife survey plans and other reports, as noted in your letter, as they become available. If you have questions regarding this letter or your responsibilities under the Act and/or other authorities described above, please contact either Clark McCreedy of my office at the letterhead address or phone (307) 772-2374, extension 228, or Scott Covington at extension 246.

Sincerely,

Scott Hicks

for Brian T. Kelly
Field Supervisor
Wyoming Field Office

cc: WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

References:

National Research Council. 2007. Environmental Impacts of Wind-Energy Projects. National Academies Press, Washington, D.C.

Novelution Wind, LLC

215 First Street Chugwater, WY 82210 P.O. Box 172 Chugwater, WY 82210 Phone: 1 307 422 3346 www.novelutionwind.com

November 20, 2009

Scott Covington
U.S. Department of the Interior
U.S. Fish and Wildlife Service
5353 Yellowstone Road, Suite 308A
Cheyenne, WY 82009

RE: Chugwater Flats Energy Project (CFEP) – October 15, 2009 Correspondence Follow-Up

Dear Mr. Covington:

Enclosed is the summer interim report on wildlife studies for the Novelution Chugwater Wind Resource Area (Project) in Platte County, Wyoming. The report presents studies completed by Western Ecosystems Technology, Inc. (WEST) in and around the Project area from Summer 2009 through Fall 2009. Avian use and additional bat detection studies are continuing through Summer 2010, and we will provide you with the final report once this is completed.

CFEP is submitting a Section 109 Permit Application pursuant to Wyoming Statute (W.S.) § 35-12-109 of the Industrial Development Information and Siting Act (ISA) in January 2010. The Project will be developed in phases. Attachment 1 presents a current map of the preliminary Project layout for Phases I and II. Future phases are under development at this time and will be revised based on further studies.

As discussed in correspondence with WGFS letter dated October 5, 2009, it's stated that some areas of the project lie within both pronghorn and mule deer crucial winter range. Following best management practices in areas designated as crucial winter range habitat for big game we will suspend construction activities from November 15-April 30.

CFEP is pleased to present to USFWS a wind energy development project that has been sited outside of not only greater sage-grouse core area but also current sage-grouse distribution areas. We respect Governor Freudenthal and USFWS's efforts in preserving all aspects of greater sage-grouse habitats. We would like to thank USFWS for their support and proactive coordination with CFEP.

Sincerely,

Deirdre L. Laviolette
Novelution Wind
VP Environmental Resources & Planning
Office: 307-422-3346
Cell: 857-928-5940
Email: laviolette.de@novelutionwind.com

cc: Clark McCreedy/ USFWS/ Clark_McCreedy@fws.gov

From: "Wendy Tyson" <WTYSON@state.wy.us>
Subject: **Re: Required Contacts in Wyoming State Government for Industrial Siting Permit**
Date: October 15, 2009 6:11:48 PM EDT
To: "Thomas Laviolette" <laviolette.tom@novelutionwind.com>
Cc: "Mary Peterson" <MPETER@state.wy.us>, "Paula Reed" <PREED2@state.wy.us>
1 Attachment, 28.0 KB

Dr. Laviolette,

Thank you for your pro-active approach on this project. The Unemployment Insurance program has statutes addressing "incremental bonds" for large projects. The attachment to this e-mail has a list of the information we need before we can make a determination on actual bond requirements.

I will be out of the office all next week (October 19 through October 23). At this time, I could meet with you the following week or in November. If you prefer, I believe we could address most of what we need to cover by phone, at this point. Please send me some dates and times that will work for you and how you prefer to meet and I'll set something up with the appropriate staff in my office, plus me.

Wendy Tyson
Administrator
Unemployment Tax Division
Department of Employment
P. O. Box 2760
Casper, WY 82602-2760
(307) 235-3201
Fax (307) 235-3278
wtyson@state.wy.us

E-mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.

>>> Thomas Laviolette <laviolette.tom@novelutionwind.com> 10/14/2009 7:52 PM >>>
Ms. Wendy Tyson, Administrator
Unemployment Tax Division
Department of Employment

Ms. Tyson,

I was hoping to set up a meeting with you to discuss our wind project in Chugwater Wyoming.

Could you let me know what information you will need for this meeting.

Also could you suggest times or date that we could meet.

Thank you,

Dr. Thomas Laviolette, CMfgE
President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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please notify us immediately by e-mail and delete the original message. Thank you.

Incremental ...doc (28.0 KB)

From: Thomas Laviolette <tlaviolette59@gmail.com>
Date: December 29, 2009 6:27:03 PM EST
To: deirdre laviolette <laviolette.de@novelutionwind.com>
Subject: **Fwd: Required Contacts in State Government for Industrial Siting Permit**

Dr. Thomas Laviolette, CMfgE
857-453-9943

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Begin forwarded message:
From: Thomas Laviolette <laviolette.tom@novelutionwind.com>
Date: October 15, 2009 1:43:36 PM EDT
To: "John Harju" <jharju@seo.wyo.gov>
Bcc: deirdre laviolette <laviolette.de@novelutionwind.com>
Subject: **Re: Required Contacts in State Government for Industrial Siting Permit**

John,

Yes, very clear and thank you.

Dr. Thomas Laviolette, CMfgE
President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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On Oct 15, 2009, at 1:22 PM, John Harju wrote:
Tom:

If you are not going to install a well, then no, no permit necessary for the well. If you are hauling water to the site for compaction for instance, you, or the purveyor of the hauled water, may need a permit for this project, depending on the source of water and what water right they may have. Every other (10 plus) wind farm project I have reviewed to date has had a need for compaction water (for initial construction of the roads and turbine pads) and for water to supply the needs of the employees housed at an O&M building at the site. So naturally, I assumed that this project was the same.

If you haul water for your needs from a Municipality, that use is likely authorized by the Municipal water right.

The Redi-Mix company, unless they are buying water for their batch plant from Chugwater, will likely also need a water right to authorize use at their potential Chugwater site, to mix the concrete to be delivered to your site. It's their responsibility to secure such a water right.

Bottom line: If you are using water from a source located at your site, you need a water right to authorize the activity. If you are using water from a source at another site which is hauled to your site, the entity providing the water needs to have a proper water right. The concrete is a product partially composed of water, but is no longer water. If you are having the concrete trucked in, you don't need a water right, but the people mixing the concrete at their site need one. No permit from this office is required to apply mag chloride water to the project roads, although the entity mixing the mag chloride water to be trucked to and applied to the roads needs a proper permit.

Hope the information helps.

John Harju

From: Thomas Laviolette [mailto:laviolette.tom@novelutionwind.com]
Sent: Thursday, October 15, 2009 10:19 AM
To: John Harju
Cc: deirdre laviolette
Subject: Re: Required Contacts in State Government for Industrial Siting Permit

John,

If we do not put in a well and we are buying concrete and mag chloride, do we still need to get a permit?

What we are doing is to use existing firms so we do not drill a new well. If we need water, then buy it from Wheatland.

Your guidance is greatly appreciated.

Dr. Thomas Laviolette, CMfgE
President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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On Oct 15, 2009, at 11:53 AM, John Harju wrote:

Tom:

You seem to have a fairly good grasp of the pertinent water supply issues as they relate to this project. If indeed the water supply well for the project will be located in an area determined to be **not** hydrologically connected to the Platte River or its tributaries, there really are no Platte River Recovery Implementation Program issues related to this project. You will need to submit an Application for Permit to Appropriate Ground Water and have it approved as a permit prior to the construction or use of the well. The State Engineer would likely issue a permit for a water well of this type with very few conditions on the use of the water well.

I don't think I can provide much other detail, but if you think you need to meet with me to satisfy some portion of the Industrial Siting process, look me up the next time you are in the area. Try to provide a few days notice prior to the meeting.

Sincerely,

John R. Harju
Assistant Administrator
Ground Water Division
Wyoming State Engineer's Office
307-777-6689

From: Thomas Laviolette [mailto:laviolette.tom@novelutionwind.com]
Sent: Thursday, October 15, 2009 8:39 AM
To: John Harju
Subject: Fwd: Required Contacts in State Government for Industrial Siting Permit

Mr. John Harju, Assistant Administrator
Ground Water Division

State Engineer;s Office

Dear Mr. Harju,

My firm Novelution Wind LLC is developing a wind farm on the flats of Chugwater.

We have several thousand acres of land that we will be developing.

At this time, we will travel along 313 Lone Tree Road to County Line Road. We will travel north for about 7 miles to the job site on this dirt road.

Mr. Jack Bell of Wyoming Department of Transportation has suggested we use Mag Chlorine on County Line Road to keep the dust down on the roads.

Thus by using this Mag Chlorine, it takes care of one large use of water that we would have had to use.

The other large use of water is the concrete for the foundations.

Croel Redi-Mix will be the supplier of the concrete to the farm. They have a plant in Wheatland that is close enough to the job site, but they also have said they are looking at putting a new plant in Chugwater.

Thus the other large water use by the farm is taken care of for this project.

6.7 Surface and Groundwater Resources

W.S. 35-12-108(a) Water Supply Yield and Analysis. Quantity of water available; analysis; public comment; opinions: If an applicant applies for an industrial siting permit, pursuant to W.S. 35-12-106, or for a waiver of the application provisions, pursuant to W.S. 35-12-107, for a facility which requires the use of 800 or more acre-feet per year of waters of the state of Wyoming annually, the applicant shall prepare and submit to the state engineer a water supply and water yield analysis with a request for a preliminary and final opinion as to the

quantity of water available for the proposed facility.

Baseline surface and groundwater resources were reviewed and water use calculations were estimated for the Project. The following sections detail the baseline conditions and potential Project impacts.

6.7.1 Regulatory Jurisdiction

Water quality associated with construction and operation of the Project will be subject to the WDEQ – Water Quality Division Standards and Regulations. Specifically, implementing Water Quality Rules and Regulations are found in Chapters 1 to 23, and also in the Wyoming Environmental Quality Act.

6.7.2 Surface Water

The Project lies within the (WE WILL FILL THIS IN)

According to the Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRM) map number 5600820520B, a 100-year floodplain exists along the North Platte River floodplain and it coincides with the southern end of the Project area (FIRM, 2008).

6.7.2.1 Construction Impacts

Construction activities are not anticipated to discharge into surface waters. Potential impacts to surface water features from erosion and sedimentation will be minimized and prevented by measures to control runoff during construction and operation of the Project. A SWPPP will be developed with the NOI for the required WYPDES General Stormwater Construction Permit and implemented to minimize impacts on surface water resources during construction of the Project. In addition, the concrete batch plant temporary work area will be covered by the WYPDES General Stormwater Construction Permit and appropriate permits from the WDEQ–WQD.

Fuel storage areas will be managed and controlled in accordance with federal and state regulations to prevent the release of petroleum products to surface waters.

Implementation of BMPs such as proper labeling and storage, secondary containment, and inspection as required by the WYPDES General Stormwater Construction Permit SWPPP will reduce the potential for accidental release of hazardous materials to surface water resources. No impacts to surface water resources are anticipated from use of hazardous materials during construction or operation. In addition, Spill Prevention, Control, and Countermeasure Plans (SPCCs), as required by 40CFR Part 112, will be developed and implemented at the site for construction and operations.

Point source discharges are not authorized into Class 1 waters such as the North Platte River unless otherwise permitted by the SWPPP. In addition, water quality may not be degraded further than existing conditions within the North Platte River. The WYDEQ has authority to impose whatever controls and monitoring are necessary on point source discharges to Class 1 waters and their tributaries to ensure that the existing quality and uses of the Class 1 water are protected and maintained. Nonpoint source discharges of pollution to Class 1 waters or tributaries of Class 1 waters shall be controlled by application of BMPs as discussed above. Since discharges to the North Platte River are not expected, the Project will be in compliance with existing TMDLs for 303(d) waters as regulated by the WYDEQ.

Any work within jurisdictional surface waters would be conducted in accordance with Sections 404 and 401 permits of the CWA. Therefore, no adverse or significant impacts to surface water resources are anticipated from Project area stream crossings during construction.

6.7.2.2 Operation Impacts

Operation of the Project will not result in substantial impairment to surface water resources that would impair the health, safety, or welfare of current or expected inhabitants in the area of primary affect.

6.7.3 Groundwater

6.7.3.1 Platte River Recovery Implementation Agreement

In 1997, Colorado, Wyoming, and Nebraska and the Department of Interior came together in a unique partnership to develop a shared approach to managing the Platte River. The result was the Platte River Recovery Implementation Program, a process to better manage the Platte River for the health of the ecosystem and the people who depend on it. The program's three main elements include increasing streamflows in the central Platte River during relevant time periods through re-timing and water conservation/supply projects; enhancing, restoring, and protecting habitat lands for the target bird species; and accommodating certain new water-related activities. Mitigating the adverse impacts of certain new water-related activities will be met through the implementation of state and federal depletion plans.

Construction Impacts

Water uses at the site will include routine low-level activities such as potable water for drinking.yr.

Operations and Maintenance Impacts

Most of the operational water usage would be associated with potable water needs for the O&M staff. At this time, it is anticipated that the O&M activities will use a local groundwater well to supply for domestic use and discharge to an onsite septic system. Based on an estimated 1,000 gallons per day water balance calculation developed by Three Buttes, the Project will require an estimated or 1.1 ac-ft/yr of groundwater at full operation.

A review of Table 6-6 shows that an estimated 1.1 ac-ft/yr would be required to operate the Project. Based on water balance calculation estimates, the Projects will not exceed the 800 ac-ft/yr threshold and will not require a WSEO water supply yield analysis or opinion. Appropriate water rights

will be obtained from either the state or existing water rights holders for water use during the operation of the facility. Therefore, operational impacts to groundwater will not result in substantial impairment to the groundwater resources or the health, safety, or welfare of the present or expected inhabitants in the area of primary affect.

Compliance with Platte River Recovery Implementation Agreement

Water supply needs for the Project will be met with either an existing water right purchase or a new water right allocation (if the water resources in the area have not been fully appropriated). A portion of the transmission line is located within an area determined to be hydrologically connected to the Platte River; however, none of the wind farm is within this zone (see Appendix E map). Areas that are hydrologically connected to the Platte River
would be avoided by the well proposed for the Project. Moreover, the WSEO will regulate surface and groundwater use/supply for the Project to ensure compliance with applicable regulations and the Platte River Implementation Agreement. Therefore, the Project will be constructed and operated in accordance with water use/supply permits and will be consistent with the goals of the Platte River Implementation Agreement.

THIS IS SOME OF THE WORK THAT WE ARE DOING.

Thus I look to you to suggest what else we may need to do.

I would very much like to have a meeting with you to discuss this project and learn anything more we need to do.

Thank you,

Dr. Thomas Laviolette, CMfgE

President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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From: "Sleesman, Robert L Civ USAF AFSPC 90 CES/CERR" <Robert.Sleesman@warren.af.mil>
Subject: **RE: Silo's R9 R10 T5**
Date: October 1, 2009 11:30:17 AM EDT
To: "Thomas Laviolette" <laviolette.tom@novelutionwind.com>
Cc: "Woods, Leilani L Civ USAF AFSPC 90 CES/CEV" <Leilani.Woods@warren.af.mil>, "Warmbier, Kurt Civ USAF AFSPC 90 MW/JA" <Kurt.Warmbier@warren.af.mil>, "Hallett, Cynthia D Civ USAF AFSPC 90 CES/CEAC" <Cynthia.Hallett@warren.af.mil>, "Sleesman, Robert L Civ USAF AFSPC 90 CES/CERR" <Robert.Sleesman@warren.af.mil>

Mr Laviolette
As I stated in our telephone conversation, as long as your company has the proper realty instruments from the land owner to use their land (for our review if need be)for the purpose of building wind turbines on their land and you build them at least 2000 feet from any missile complex, you get consents from us to cross our Air force easements and you follow the conditions that will accompany those easements we do not have any objections to you building your proposed wind turbines. Will this statement help you in your quest to move forward? If not let me know.
Bob Sleesman Real property Officer

-----Original Message-----
From: Thomas Laviolette

[mailto:laviolette.tom@novelutionwind.com]
Sent: Saturday, September 26, 2009 7:16 PM
To: Sleesman, Robert L Civ USAF AFSPC 90 CES/CERR
Subject: Silo's R9 R10 T5

Mr. Robert Sleesman,

Thank you for taking my call Friday to talk about our wind farm in Chugwater Wyoming that has your three silos, R9, R10, and T10.

I understand the silos are in the inactive mode and that we still need to maintain a 2000 foot set back from the silos.

I also understand that you have easements for the cabling of the silos.

We respect these easements and when we lay out our farm we will bring our prints to your office for inspection and discussion about areas that we may cross and work out a solution.

We are being required by our investors to have some type of confirmation that we can in fact build the wind farm around these silos. Could we get some type of letter from you stating our ability to build.

Our address in Chugwater Wyoming is:

Novelution Wind LLC
PO Box 172
215 1st Street
Chugwater Wyoming 82210

Again, thank you for your time,

Dr. Thomas Laviolette, CMfgE

President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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From: "Brad Westby" <bwestb@state.wy.us>
Subject: **Re: Required Contacts in State Government for Industrial Siting Permit**
Date: October 19, 2009 12:41:15 PM EDT
To: "Thomas Laviolette" <laviolette.tom@novelutionwind.com>
Cc: "Brad Westby" <BWESTB@state.wy.us>

Hello Thomas,

Thank you for contacting the Department of Workforce Services with
regards to the Novelution Wind LLC project. Typically what the
Department is looking for is what type of workforce will be needed to
meet your workforce needs, location of the project, start/end date, that
type of pertinent information. I will be in the office this week and
the week of November 2nd, and traveling the rest of this month and next.
Feel free to contact me at (307)777-2971, or on my cell phone at
(307)286-1593 so we can schedule an appointment to meet.

Best regards,
Brad

Brad Westby
Industry Partnership Manager
Wyoming Department of Workforce Services
Office: (307)777-2971
Mobile: (307)286-1593
Fax: (307)777-5857
bwestb@state.wy.us

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recipient or his or her authorized agent, the reader is hereby notified
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sender by replying to this message and delete this e-mail
immediately." PLEASE NOTE: E-Mail to and from me, in connection
with the transaction of public business, is subject to the Wyoming
Public Records Act.

Thomas Laviolette
<laviolette.tom@novelutionwind.com>
10/14/2009
8:52 PM >>>
Mr. Westby
Industry Partnership Manager
Department of Workforce Services

Mr. Westby,

I would like the opportunity to speak or meet with you to discuss what

Novelution Wind LLC needs to do to get local employees working on our

wind project.

Could you let me know what you would like to see for such a meeting.

Please suggest some times and dates we could meet.

Thank you,

Dr. Thomas Laviolette, CMfgE
President
Novelution Wind LLC
857-453-9943
laviolette.tom@novelutionwind.com

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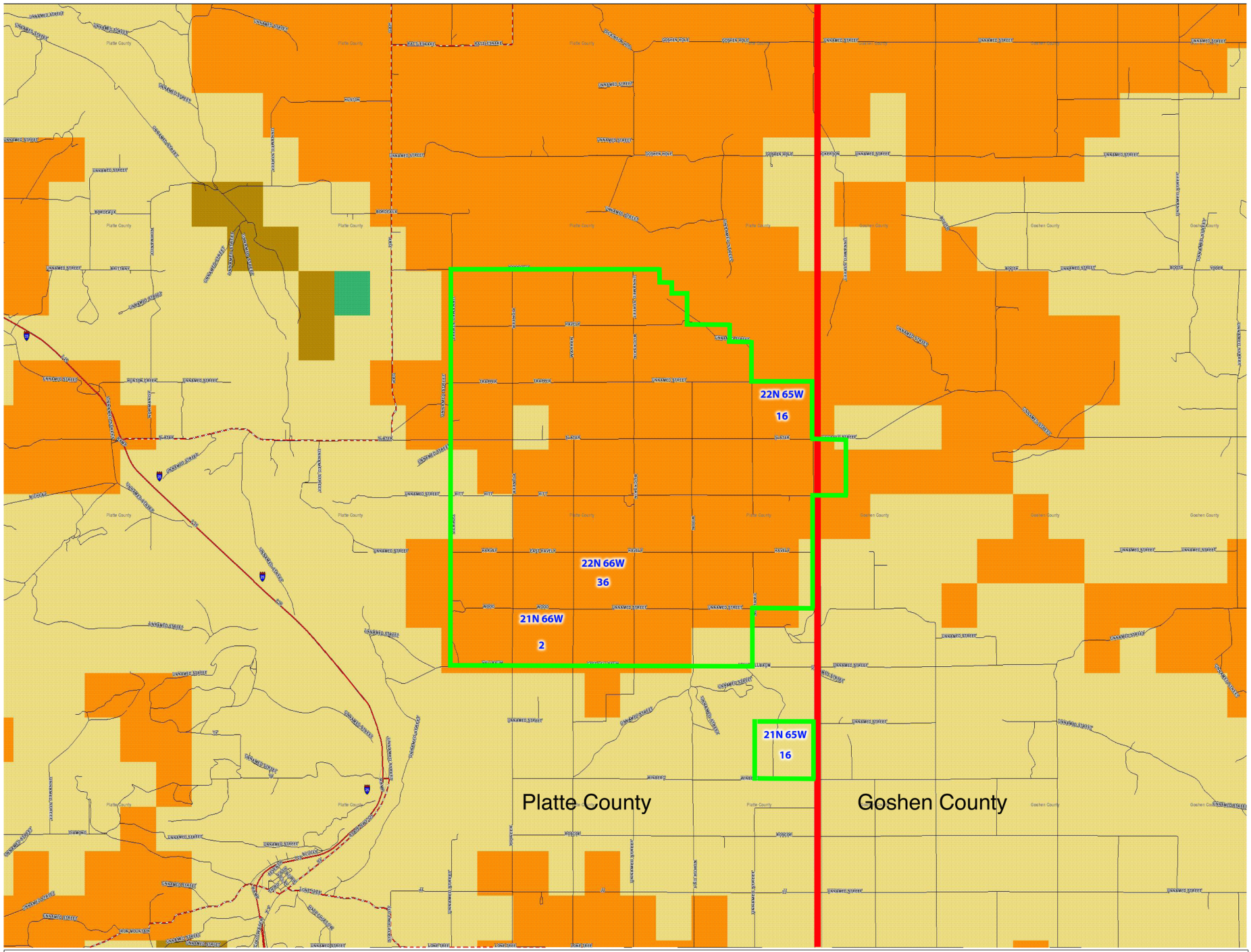
Appendix E

Resource Maps



Legend

Grassland
Shrubland
County Line
Project Boundary

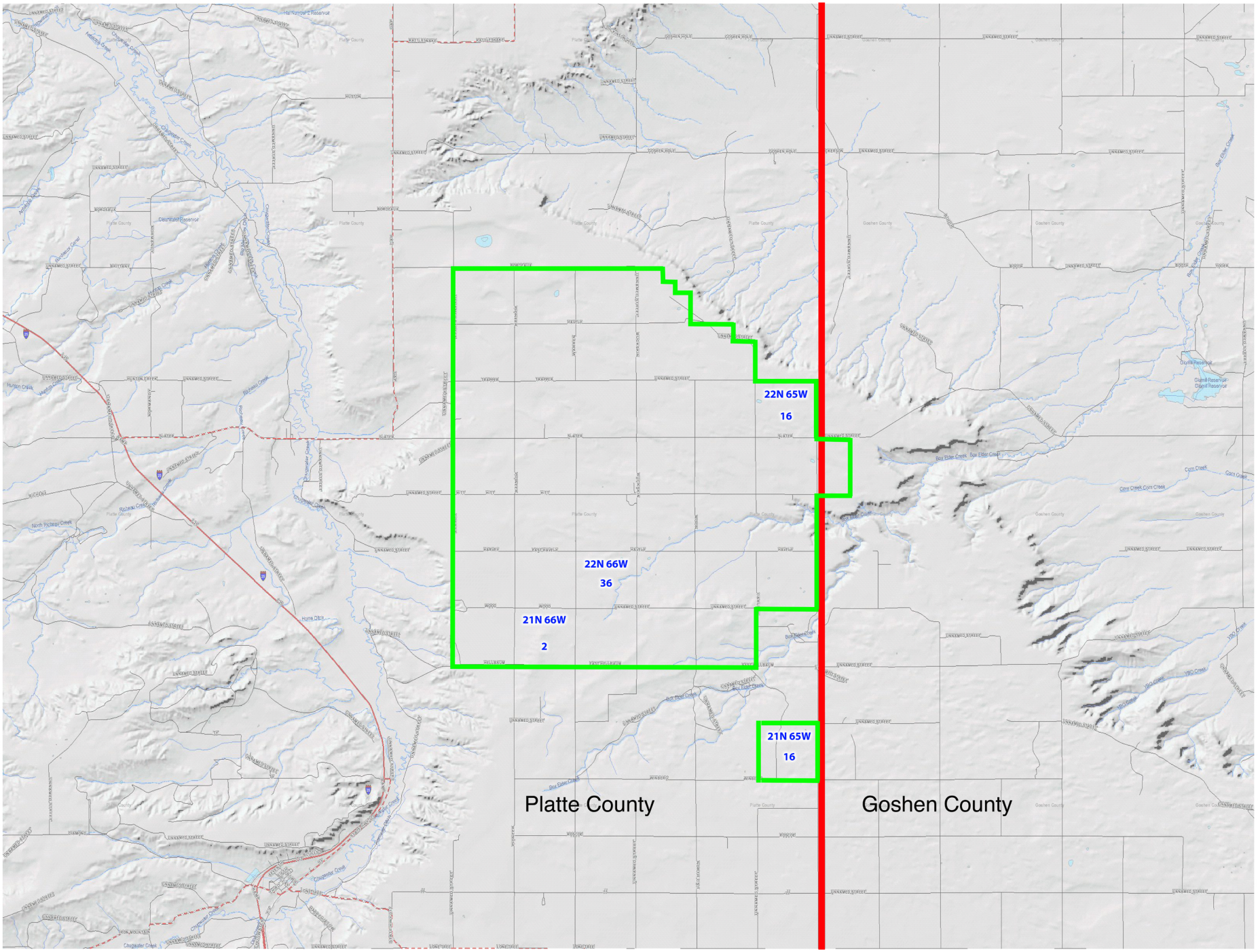
N

1 mile

Vegetation

Chugwater Flats Energy Project
Novelution Wind, LLC

Source: USGS 2009



Legend

Surface Water

County Line

Project Boundary

N

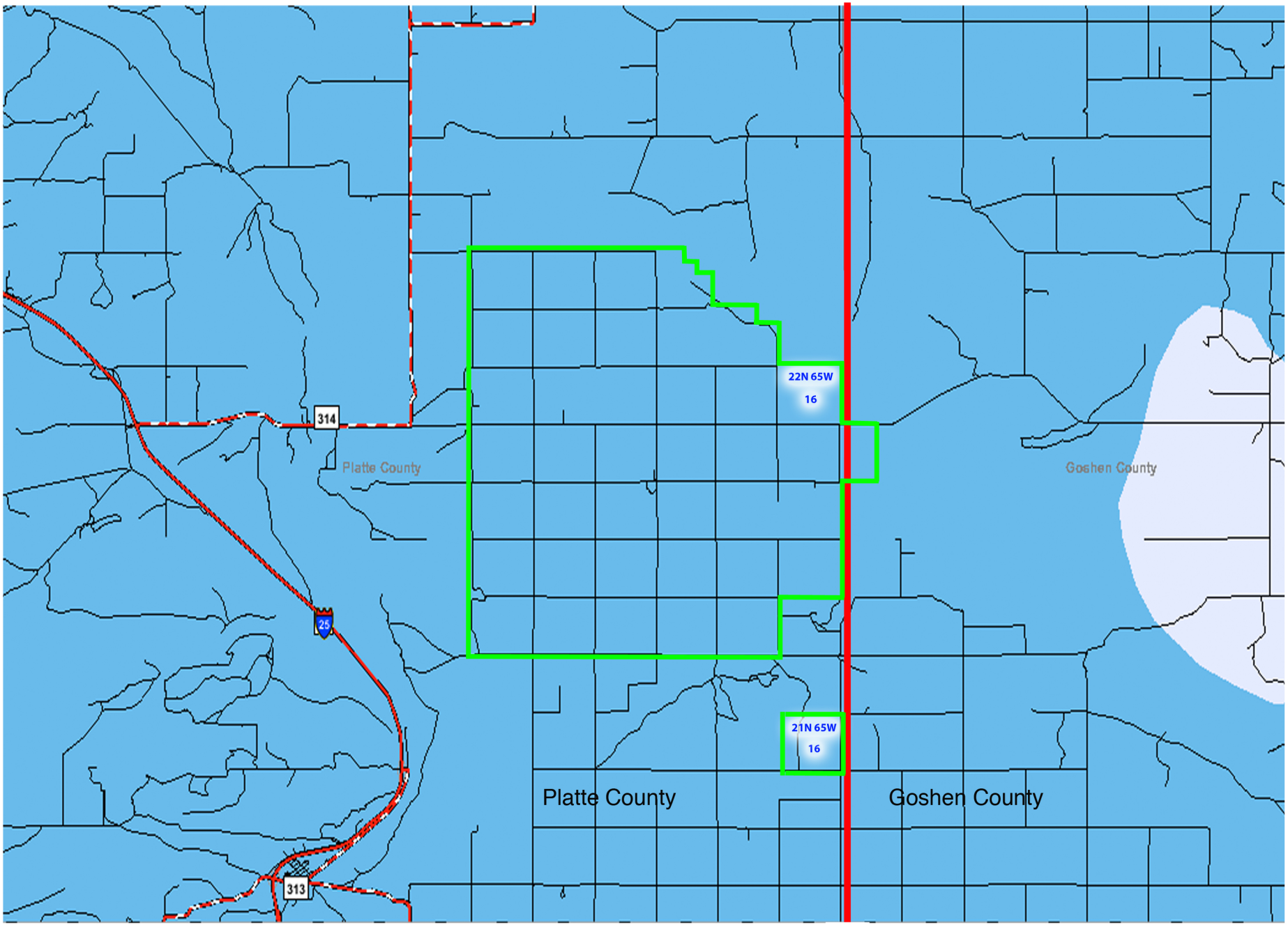
1 mile

Surface Water

Chugwater Flats Energy Project

Novelution Wind, LLC

Source: USGS 2009



Legend

High Plains Aquifer

County Line

Project Boundary

N

1 mile

Aquifer

Chugwater Flats Energy Project

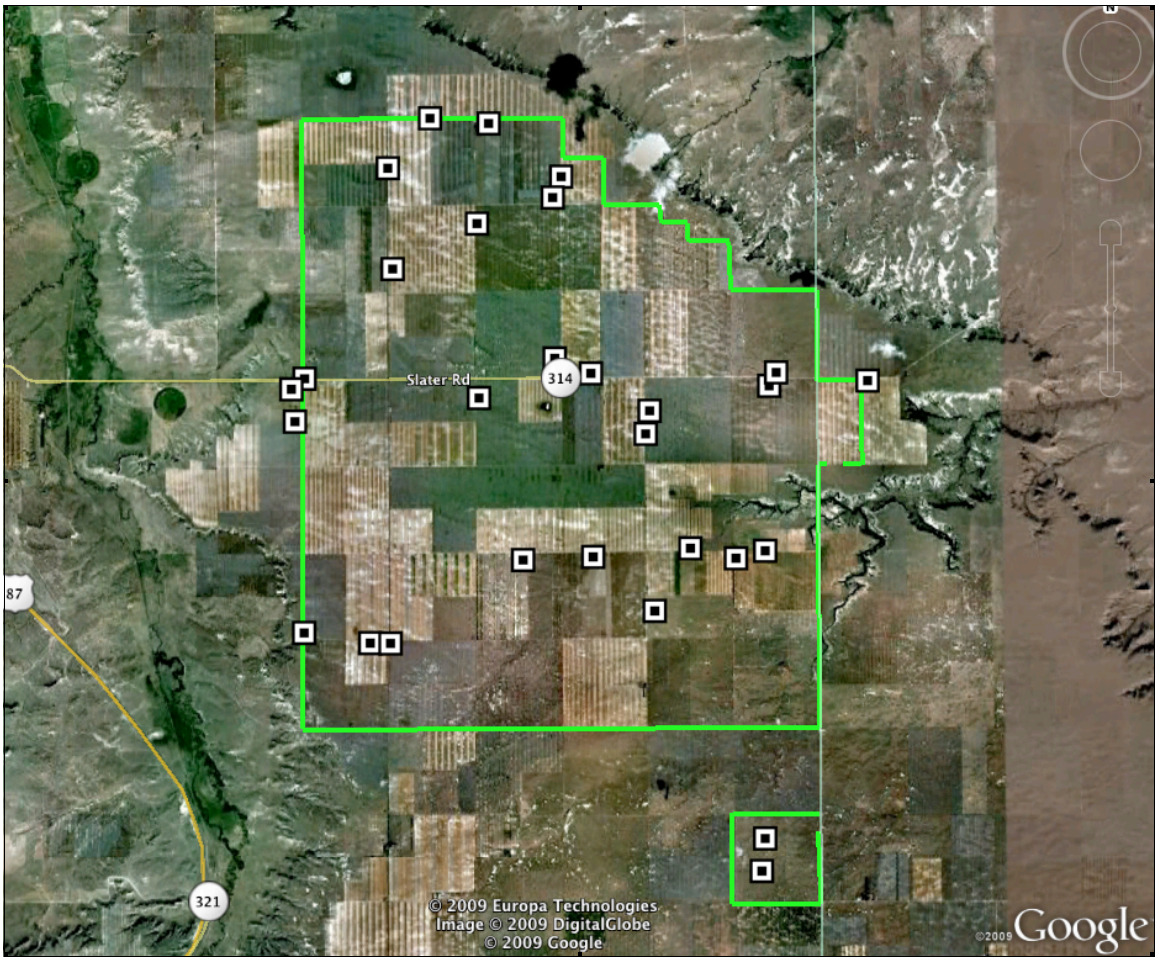
Novelution Wind, LLC

Source: USGS 2009

PARKS AND RECREATION MAP

Location of Local, State, and National Parks with regards to Project site.

Location of Wells Within and Around the Project



Appendix F

Housing

Hotel Committments 2009/2010

Business	Location	Contact name	Total # of rooms at facility	October	November	December	April	May	June	July	August	September	October	April 2010	May	June	July	August	September
Buffalo Lodge	**Chugwater**	Dirk/LaNetta Chapman, Managers	**24**	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Motel 6	**Wheatland**	Bev Burns, Manager	**45**	30	30	30				30	30	30	30		30	30	30	30	30
Parkway Motel	**Wheatland**	Jim Throne, manager will rent out by the week. No meals, wants prepaid	**14**																
Super 8 Motel	**Wheatland**	Tammy Finnerty, Manager	**57**	20	20	20			20	20	20	20	20		20	20	20	20	
Vimbo's Motel	**Wheatland**	Joy Wilhelm, Owner	**38**	20	20	20			20	20	20	20	20		20	20	20	20	
Wyoming Motel, 322-5385 fax, 5383 ph	**Wheatland**	Ann Borgialli, Owner	**26**						15	15	15	15	15		15	15	15	15	
Best Western Torchlite Motor Inn	**Wheatland**	Suzie Cozad, Manager, Owner	**50**		30	30	30	30	30	30	30	30	30		30	30	30	30	
Total			**254**	**90**	**120**	**120**	**50**	**50**	**105**	**135**	**135**	**135**	**135**	**20**	**135**	**135**	**135**	**135**	**50**
America's Best Value Inn	**Torrington**	Trish, Manager	**56**	20	20	20			20	20	20	20	20		20	20	20	20	
Blue Lantern Motel	**Torrington**	Jane Schimick	**5**																
Days Inn	**Torrington**	Lynette, Manager	**45**	15	15	15			15	15	15	15	15		15	15	15	15	
Grandma's Inn	**Torrington**	Sherry, Manager	**14**	8	8	8			8	8	8	8	8		8	8	8	8	
Holiday Inn Express	**Torrington**	Tammy	**57**	15	15	15			15	15	15	15	15		15	15	15	15	
Total			**177**	**58**	**58**	**58**			**58**	**58**	**58**	**58**	**58**		**58**	**58**	**58**	**58**	
Total of Both Counties			**431**	**148**	**1458**	**148**	**50**	**50**	**163**	**163**	**163**	**163**	**163**	**20**	**163**	**163**	**163**	**163**	**50**

Americas Best Value Inn
by Vantage

Americas Best Value Inn
of Torrington
1548 South Main St - Torrington, WY 82240
Reservation 1-866-506-8181 National toll free 1-888-375-BEST
Questions 1-307-532-7118 Website bestvaluetorrington.com

December 22, 2010

To whom it may concern.

I would like to take a minute of your time to talk to you a little about our motel. We have 56 rooms (smoking and non smoking available), High Speed Wireless Internet in all the rooms also a computer workstation in the lobby, hair dryers in all rooms, coffee pots , HD TVs , microwave and refrigerators on request, we also have a heated indoor pool and whirlpool. We also have a meeting room that seat 75-80 or can be split to provide two rooms with 35-40 seating. We also do a breakfast in the morning from 7 am – 10am which includes cold cereal, toast, bagels, orange juice, and milk, located in the lobby.

Check in is at 1:00pm and check out is at 11:00am unless other arrangements are made.

Our corporate rate for your event one single rate of: 1-4 persons are $66.60 plus tax. I can hold 20 rooms for your event.

When calling to make reservations, be sure to let us know that you are with the event so you will get the special rate.

We would like to invite you to stay with us on your next visit to Torrington with Clean Rooms and a Very Friendly Staff.

Sincerely yours,

Trish Bohnenkamp

Trish Bohnenkamp
General Manager and Staff of the
Americas Best Value Inn of Torrington

From: "Sherry Craig" <sherryc@maddenbrothers.com>
Subject: **Letter of Committment for Grandma's Inn**
Date: December 21, 2009 4:38:26 PM MST
To: <lfortik@yahoo.com>

To Wom It May Concern:

Grandma's Inn is a small motel comsisting of thirteen rooms. Four are singles with queen beds, small refrigerators and microwaves. Nine rooms are doubles with queen beds, small refrigerators and microwaves. Three of the nine rooms are kitchenettes. Our upstairs is a Penthouse Suite with three bedrooms, two baths, kitchen, dining and living area.

The rooms rent for $ 45.78 per night for our singles, $ 51.23 per night for doubles, $ 59.95 per night for the kitchenettes. Our penthouse rents for 118.81 per night.

We would be happy and willing to commit six to eight rooms to accommodate your workers who would be coming into our area.

If we can be of service to your and your workers please contact me, Sherry @ Madden Brothers - 307-532-7079.

Thank you for considering our accommodations.

Sincerely,

Sherry Craig
Grandma's Inn
P.O. Box 670
Torrington, WY 82240
307-532-7079

Days Inn
1555 Main St
Torrington, WY 82240
307-532-4011 FAX 307-532-7202

December 6, 2009

Novelution Wind Llc

Dear LuCinda

Thank you for your inquiry about our hotel. We would be honored to have the employees for you project stay with us. We have 45 rooms in our hotel. I would be glad to hold 20 rooms for your crew and more if needed. With our rooms they get a complimentary hot breakfast of egg, sausage, hash browns, and toast. We also have a restaurant and lounge on sight as well as a swimming pool. We will honor rates of $54.95 for a single king room and $64.95 for a double queen room.

Again thank you for your inquiry about our hotel and we look forward to working with you in the future. If you have any questions please feel free to call me anytime at 307-532-4011.

Lynette Palmer

Lynette Palmer
General Manager

Holiday Inn
EXPRESS
HOTEL & SUITES

Dec. 2, 2009

To: Novelution Wind LLC,

My name is Tammy Exley, I am the General Manager of the Holiday Inn Express in Torrington, WY.

We would like to offer your employees lodging at our hotel and would be able to commit at least 15-20 rooms.

Our hotel was completely renovated in 2008 and is completely **nonsmoking.** All rooms have a refrigerator, microwave and refreshment center. The rooms also have 32" flat screen HD TV's, blow dryers, iron and ironing boards. We also have free wireless or hard wire internet. If you don't have a laptop, we have a business center equipped with two computers and a printer.

All rooms have smoke detectors along with all public areas. The hotel is also fully sprinkler.

We offer a complimentary breakfast from 6:00 – 9:30 a.m. It has all your continental basics, biscuits and gravy, and alternate between scrambled eggs and bacon, and cheese omelets and sausage.

We have an indoor swimming pool, hot tub, and fitness center. The fitness equipment all has individual TV's. Head set are available at the front desk.

We have a manager's reception Monday and Wednesday nights. There are meat and cheese trays along with munchies, soft drinks and water (sorry no alcohol). This runs from 5:30-7:30 p.m.

We look forward to having you stay with us. If you have any questions please call me at 307-532-7600.

Sincerely,

Tammy Exley

Tammy Exley
General Manager

1700 East Valley Road, P.O. Box 1153 • Torrington, WY 82240 • 307/532-7600 • Fax: 307/532-7600
Email: hiexpresstorrington@yahoo.com • www.hiexpress.com/torringtonwy
Independently owned and operated by Torrington Hospitality, LLC.

Holiday Inn
EXPRESS
HOTEL & SUITES

Dec. 2, 2009

To: Novelution Wind LLC,

My name is Tammy Exley, I am the General Manager of the Holiday Inn Express in Torrington, WY.

We would like to offer your employees lodging at our hotel and would be able to commit at least 15-20 rooms.

Our hotel was completely renovated in 2008 and is completely **nonsmoking.** All rooms have a refrigerator, microwave and refreshment center. The rooms also have 32" flat screen HD TV's, blow dryers, iron and ironing boards. We also have **free** wireless or hard wire internet. If you don't have a laptop, we have a business center equipped with two computers and a printer.

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Email: hiexpresstorrington@yahoo.com • www.hiexpress.com/torringtonwy
Independently owned and operated by Torrington Hospitality, LLC.

SUPER 8 WHEATLAND

307-322-2224

Somewhere between where you are and where you are going there's a SUPER 8 Motel. Convenience and value are important during any trip, be it for business or pleasure, and Super 8 is the perfect choice for both value and convenience.

We would like to share with you some of the exciting amenities the new Super 8 Motel in Wheatland has to offer.

- *A Local Wheatland Preferred Rate.*
- *Indoor Pool and Spa.*
- *Complimentary Super Start Breakfast each and every morning.*
- *Every Room has it's own Refrigerator, Microwave & Coffee Maker.*
- *Completely Non-Smoking facility.*
- *Wake-up Calls and alarm clocks too.*
- *Cable TV.*
- *Handicap Facilities.*
- *Guest Laundry.*
- *High Speed Internet & Direct Dial-Up.*
- *Barbeque Grill on the Patio for Guest use.*
- *A&W/Chester Fried Chicken Restaurant located behind motel.*
- *Access to the local Country Club on our membership.*
- *24 hour front desk service and MUCH MORE!!!*

The Super 8 in Wheatland will offer you consistently clean and friendly accommodations and services at an affordable rate! We look forward to serving you!!!

LIFE IS GREAT AT SUPER 8!!

From: Tami Finnerty <t_finnerty@hotmail.com>
Subject:
Date: July 1, 2009 2:14:08 PM MDT
To: <lfortik@yahoo.com>
1 Attachment, 22.0 KB

Hi Lucinda -- Please find attached a list of our amenities at Super 8 Wheatland, per our previous conversation. We would be willing to commit to reserving 30 rooms for the months of October, November, December, January, 2009 if the project should begin at this time, and 20 rooms for the months of June, July, August, September and October, 2010 and more if needed depending on availability. Our rate for the 2009 dates would be a special preferred rate offered to those promoting the Wheatland community. This rate is $65.00 + tax for Standard Rooms and $75.00 + tax for King & Queen Suites. This rate may increase $5.00 per room type for the year 2010. If you should have any further questions, please feel free to contact me at anytime, and I will keep in touch with you as well as the project progresses. Thank you. Tami

---

Insert movie times and more without leaving Hotmail®. See how. Super 8 Adv...doc (22.0 KB)

Motel 6
95 15th St
Wheatland, WY 82201
Phone: (307)322-1800
Fax: (307)322-1799

October, November, December 2009 - 30 rooms
April, May, June 2010- 20 rooms, due to prior reservations
July thru October 2010- 30 rooms

Weekly Rates:
1 person: $363.51
2 people: $408.03

The majority of our rooms on the bottom floor have refrigerators, some on the top floor have them as well. There is a microwave in the lobby that guest are welcome to use, but prolonged stay guests are welcome to bring their own microwave and coffee pot for their room. Otherwise coffee is served from 6-10 a.m. each day.

Buffalo Lodge, Grill & RV Park
100 Buffalo Drive
Chugwater, WY 82210
307-422-3248

07/07/2009

To Whom It May Concern:

The Buffalo Lodge, Grill and RV Park would welcome your business for your employees during the coming months. We have 24 rooms available for your subcontractors, employees and others associated with Novelution Wind.

Our Prices are as follows:

1 bed 1 person	$69.95
1 bed, 2 people	$75.95
2 bed, 2 people	$79.95
2 bed, 3 people	$84.95
2 bed, 4 people	$89.95
Each person extra	$10.00
Pets	$12.50
Rollaway	$7.50

We have a full-service restaurant attached to the motel as well as condiments available for after-hours.

We look forward to your business. Please let us know how we may be of assistance to your company.

Thank You,

Dirk & LaNetta Chapman

To Whom It May Concern:

Vimbo's Motel would like to be considered for your employees during the work you have near Wheatland, Wy.

We will have a full motel during the outage at the power plant in Wheatland from April 1st through May 31st.

Our prices are $53.95 for one person one bed and $60.95 for two people two beds as of now but we cannot guarantee prices will be the same when you begin work.

We have 38 rooms and 3 suites. The suites are actually apartments with full kitchens, laundry and at least two beds. We also have a full service restaurant, bar and lounge on the property.

Vimbo's would like you and your crew to stay with us.

Thank you
Joy - Manager
7-7-2009

Appendix G
Comprehensive Reports

Wildlife Studies for the Novelution Chugwater Wind Resource Area Platte County, Wyoming

Summer Interim Report
July 1 – September 18, 2009

Prepared for:

Novelution Wind, LLC
215 First Street
Chugwater, WY 82210

Prepared by:

Greg Johnson and Kimberly Bay

Western **E**co**S**ystems **T**echnology, Inc.
2003 Central Avenue
Cheyenne, Wyoming

November 3, 2009

EXECUTIVE SUMMARY

Western EcoSystems Technology, Inc. initiated surveys and monitoring of wildlife resources for Novelution Wind, LLC, in the Novelution Chugwater Wind Resource Area in Platte County, Wyoming, in July 2009. Wildlife use may vary greatly by season, thus a wind-energy facility may have relatively low use during one season, but use may be higher during another. Because of this, impact assessments are generally based on at least one full year of surveys. The fixed-point bird use surveys implemented during the summer of 2009 are part of a larger one-year study; however, seasonal interim reports are designed to give Novelution an early warning if high wildlife use is documented during surveys or if sensitive species are observed within the study area. The following document contains the results of fixed-point bird use surveys, incidental wildlife observations, and published wildlife information.

The objective of the fixed-point bird use surveys was to estimate seasonal and spatial use of the Novelution Chugwater Wind Resource Area by birds, particularly raptors. Fixed-point bird use surveys were conducted from early-July through mid-September 2009. Five observation points were established within Novelution Chugwater Wind Resource Area and each point was visited eight times during the summer season, for a total of 40 20-minute surveys. A total of 527 individual birds within 199 separate groups were recorded during fixed-point surveys, representing a total of 28 species. Passerines comprised over 80% of observations, while raptors accounted for just over 8% of individuals observed.

The objective of incidental wildlife observations was to record wildlife seen outside of the standardized surveys. Incidental wildlife observations recorded in transit between survey points at the Novelution Chugwater Wind Resource Area included one mammal species (pronghorn antelope; four individuals) and a single observation of one bird species (dickcissel).

Several Wyoming species of concern were recorded during fixed-point bird surveys or incidentally, including one ferruginous hawk and one merlin, both designated Native Status Species 3 in Wyoming. Six species designated as Native Status Species 4 were also recorded: 175 lark buntings, 11 McCown's longspurs, nine grasshopper sparrows, six Swainson's hawks, two upland sandpipers, and one dickcissel.

In addition to presenting interim results of field surveys, we obtained relevant published information on wildlife use of the Novelution Chugwater Wind Resource Area, including maps of big game crucial winter ranges and greater sage-grouse core use areas. A small portion of the Novelution Chugwater Wind Resource Area is within an area mapped as pronghorn antelope crucial winter range, but there is no mule deer crucial winter range within the study area. There also are no greater sage-grouse core use areas in the vicinity of the proposed wind resource area. The nearest greater sage-grouse core use areas are located over 40 miles (64 kilometers) from the study area on the west side of Interstate 25.

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STUDY PARTICIPANTS

Western EcoSystems Technology

Greg Johnson	Project Manager, Ecologist/Senior Manager
Kimberly Bay	Data Analyst and Report Manager
Saif Nomani	Statistician
JR Boehrs	GIS Technician
Elizabeth Baumgartner	Report Compiler
Andrea Palochak	Technical Editor
Scott McConnell	Field Technician

INTRODUCTION

Novelution Wind, LLC (Novelution) is proposing to develop a wind-energy facility in the Novelution Chugwater Wind Resource Area (NCWRA), located in Platte County, Wyoming. Novelution requested Western EcoSystems Technology, Inc. (WEST) to develop and implement a standardized protocol for baseline wildlife studies in the NCWRA with the purpose of estimating impacts of the proposed wind-energy facility on wildlife, and to assist with siting turbines to minimize impacts to wildlife resources. These protocols for the baseline studies are similar to those used at other wind-energy facilities across the nation, and follow the guidance of the National Wind Coordinating Collaborative (Anderson et al. 1999). The protocols have been developed based on WEST's experience studying wildlife at proposed wind-energy facilities throughout the US; and were designed to help predict potential impacts to bat and bird species (particularly raptor species).

The purpose of the following interim report is to bring items of biological interest to Novelution's attention, such as seasonal raptor use and the presence of sensitive species. The scope of the summer 2009 wildlife studies included fixed-point bird use surveys and acoustic bat surveys; however, this report presents only results of fixed-point bird surveys, incidental wildlife observations, and published wildlife information from the Wyoming Game and Fish Department (WGFD).

STUDY AREA

The proposed wind resource area is comprised of four parcels encompassing 2,715 acres (4.2 square miles [mi^2]) near Chugwater Flats in the extreme eastern portion of Platte County, Wyoming, and east of the town of Chugwater (Figure 1). The NCWRA is located in the Western High Plains Ecoregion (Chapman et al. 2004), which is characterized by high elevation, arid climate, and flat-to-rolling topography. Native vegetation in this Ecoregion is typically short prairie grasses such as blue grama (*Bouteloua gracilis*) and buffalo grass (*Buchloe dactyloides*), but much of the region has been converted to cropland, primarily winter wheat. There is little development in the study area. Several homesteads, many of which are abandoned, occur throughout the area and several missile silos, operated by Warren Air Force Base, also occur in the area. Additionally, underground pipelines and overhead powerlines traverse portions of the NCWRA. Topography within the study area is relatively flat to gently rolling. The northern-most section of the NCWRA abuts Goshen Rim, a line of eroded sandstone bluffs, cliffs, and pinnacles where elevation drops steeply. Elevations in the study area range from approximately 4,600-5,450 feet (ft; 1,400-1,660 meters [m]) above sea level.

Landcover within the leased parcels is comprised of 40.4% cropland (primarily winter wheat [*Triticum* spp.]), 34.1% grassland, 22.8% scrub-shrub, 2.6% developed open space, and 0.1% evergreen forest. Within a one-mile (1.6 kilometer [km]) buffer of the NCWRA, the primary land cover is cropland (36.1%), grassland (34.4%) scrub-shrub (26.2%) and developed open space (2.7%); all other land cover types comprise less than 1% of the area (Table 1; Figure 2).

METHODS

Summer and early fall surveys conducted at the NCWRA consisted of fixed-point bird use surveys, acoustic bat surveys, and incidental wildlife surveys. Only results of the fixed-point bird use surveys and incidental wildlife observations are presented in this report. The results of bat acoustic surveys will be presented in a separate report once all of the data have been analyzed.

Fixed-Point Bird Use Surveys

The objective of the fixed-point bird use surveys was to estimate seasonal and spatial use of the NCWRA by birds, particularly raptors, defined here as kites, accipiters, buteos, harriers, eagles, falcons, and owls. All birds seen during each 20-minute (min) fixed-point survey were recorded.

Bird Use Survey Plots
Fixed-point surveys (variable circular plots) were conducted using methods described by Reynolds et al. (1980). Five points were selected to survey representative habitats and topography of the NCWRA, while also providing relatively even coverage (Figure 2). Each survey plot was an 800-m (2,625-ft) radius circle centered on the point.

Bird Survey Methods
All species of birds observed during fixed-point surveys were recorded. Observations of large birds beyond the 800-m radius were recorded, but were not included in statistical analyses; small bird observations beyond a 100-m (328-ft) radius were excluded. A unique observation number was assigned to each observation.

The date, start and end time of the survey period, and weather information such as temperature, wind speed, wind direction, and cloud cover were recorded for each survey. Species or best possible identification, number of individuals, sex and age class (if possible), distance from plot center when first observed, closest distance, altitude above ground, activity (behavior), and habitat(s) were recorded for each observation. Behavior and habitat type were recorded based on the point of first observation. Approximate flight height and distance from plot center at first observation were recorded to the nearest 5-m (16-ft) interval. Other information recorded included whether or not the observation was auditory only and the 10-min interval of the 20-min survey in which the observation was initially noted.

Locations of raptors, other large birds, and species of concern seen during fixed-point bird use surveys were recorded on field maps by unique observation number. Flight paths and perched locations were digitized using ArcGIS 9.3. Any notes or unusual observations were recorded in the comments section of the data sheet.

Observation Schedule
Sampling intensity was designed to document bird use and behavior by habitat and season within the study area. Surveys were conducted every other week during the summer (July 1 to August 31) and once every week during the fall migration period (September 1 – September 18).

Surveys are currently ongoing and are planned to be continued through June 30, 2010 to provide one full year of baseline data. Surveys were carried out during daylight hours and survey periods were varied to approximately cover all daylight hours during a season.

Incidental Wildlife Observations

The objective of incidental wildlife observations was to record wildlife seen outside of the standardized surveys. All raptors, unusual or unique birds, sensitive species, mammals, reptiles, and amphibians were recorded in a similar fashion to standardized surveys. The observation number, date, time, species, number of individuals, sex/age class, distance from observer, activity, height above ground (for bird species), habitat, and, in the case of sensitive species, Global Positioning System (GPS) coordinates were recorded.

Published Wildlife Information

In addition to presenting interim results of field surveys, we obtained relevant published information from the WYGFD on wildlife use of the NCWRA, including maps of big game crucial winter ranges and greater sage-grouse (*Centrocercus urophasianus*) core use areas.

RESULTS

This interim report presents the results of field work conducted in the summer and early fall of 2009 for the NCWRA from July 1 to September 18, 2009.

Fixed-Point Bird Use Surveys

Forty 20-min fixed-point bird use surveys were conducted within NCWRA in the course of eight visits from July 1 through September 18, 2009.

Twenty-eight unique species were observed during fixed-point bird use surveys (Table 2). A total of 527 individual birds within 199 separate groups were recorded. Passerines were by far the most abundant bird type recorded, accounting for 81.8% of all observations. Passerine abundance was primarily due to relatively high numbers of lark bunting (*Calamospiza melanocorys*; 175 individuals) and horned lark (*Eremophila alpestris,* 137 individuals). These two species composed only 7.1% of all bird species observed; yet accounted for 59.2% of total bird observations. Raptors accounted for 8.3% of all individuals observed, with northern harrier (*Circus cyaneus*) and red-tailed hawk (*Buteo jamaicensis)* being the most commonly observed raptor species (12 and 13 individuals, respectively).

One ferruginous hawk (*Buteo regalis*) and one merlin (*Falco columbarius*), both designated as Wyoming Native Status Species (NSS) 3 species of concern, were recorded within the proposed NCWRA during fixed-point bird use surveys. Five Wyoming NSS4 species of concern were also recorded within the NCWRA: 175 lark buntings, 11 McCown's longspurs

(*Calcarius mccownii*), nine grasshopper sparrows (*Ammodramus savannarum*), six Swainson's hawks (*Buteo swainsoni*), and two upland sandpipers (*Bartramia longicauda*).

Incidental Wildlife Observations

Incidental wildlife observations recorded in transit between survey points at the NCWRA included one mammal species, pronghorn antelope (*Antilocapra americana*; four individuals), and one bird species, dickcissel (*Spiza americana*; one individual). The dickcissel is listed as a NSS4 Wyoming species of concern and was the only sensitive species recorded incidentally within the NCWRA.

Published Wildlife Information

The NCWRA is not within an area mapped as a greater sage-grouse core use area (Figure 4). The nearest core use area for greater sage-grouse is located west of Interstate 25 and over 40 miles (64 km) from the study area. A small portion of the NCWRA is located within pronghorn antelope crucial winter range (Figure 5), whereas there is no designated mule deer (*Odocoileus hemionus*) crucial winter range in the NCWRA (Figure 6).

DISCUSSION

Wildlife use may vary greatly by season, thus a wind-energy facility may have relatively low use during one season, but higher use during another. Because of this, rigorous impact assessments are generally based on at least one full year of surveys. The studies implemented at NCWRA during the summer and early fall of 2009 are part of a larger one-year study. The season interim reports are designed to give Novelution an early warning if high wildlife use is documented during surveys or if sensitive species are observed. Two NSS3 and six NSS4 Wyoming species of concern were recorded within the proposed NCWRA.

Passerines are generally the most abundant bird type found during fatality searches at wind-energy facilities (Erickson et al. 2001a). Raptors, however, have received much attention due to high rates of fatalities at the Altamont Pass wind-energy facility in California, which has the highest recorded overall raptor fatality rate of any wind-energy facility (Erickson et al. 2002b). Based on the results from other wind resource areas, a ranking of seasonal mean raptor use was developed as: low (0 – 0.5 raptors/800-m plot/20-min survey); low to moderate (0.5 – 1.0); moderate (1.0 – 2.0); high (2.0 – 3.0); and very high (> 3.0). Mean raptor use (number of raptors divided by the number of 800-m plots and the total number of surveys) in the NCWRA during the summer and early fall of 2009 was low to moderate (0.98 raptors/plot/20-min survey) relative to data collected at other existing and proposed wind-energy facilities that implemented similar protocols and had data for a similar season (Figure 7).

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Western EcoSystems Technology, Inc. (WEST). 2005c. Wildlife and Habitat Baseline Study for the Proposed Biglow Canyon Wind Power Project, Sherman County, Oregon. March 2004 - August 2005. Prepared for Orion Energy LLC., Oakland, California. October, 2005. WEST. Cheyenne, Wyoming.

Western EcoSystems Technology, Inc. (WEST). 2006a. Diablo Winds Wildlife Monitoring Progress Report, March 2005 - February 2006. Technical report submitted to FPL Energy and Alameda County California. WEST. Cheyenne, Wyoming.

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Western EcoSystems Technology, Inc. (WEST) and Northwest Wildlife Consultants, Inc. (NWC). 2003. Analysis of Potential Avian/Wind Plant Interactions in Klickitat County, Washington. Supplement to the Klickitat County Programmatic Environmental Impact Statement. Prepared for the Resource Development Department, Klickitat County, Goldendale, Washington, by WEST, Cheyenne, Wyoming, and NWC, Pendleton, Oregon. May 2003.

Young, D.P. Jr., W.P. Erickson, K. Bay, J. Jeffrey, E.G. Lack, R.E. Good, and H.H. Sawyer. 2003a. Baseline Avian Studies for the Proposed Hopkins Ridge Wind Project, Columbia County, Washington. Final Report, March 2002 - March 2003. Prepared for RES North America, LLC., Portland, Oregon, by Western EcoSystems Technology, Inc.(WEST), Cheyenne, Wyoming. April 30, 2003.

Young, D.P. Jr., W.P. Erickson, K. Bay, J. Jeffrey, E.G. Lack, and H.H. Sawyer. 2003b. Baseline Avian Studies for the Proposed Desert Claim Wind Power Project, Kittitas County, Washington. Final Report. Prepared for Desert Claim Wind Power, LLC, Ellensburg, Washington, by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. July 2003.

Young, D.P. Jr., W.P. Erickson, J. Jeffrey, K. Bay, R.E. Good, and E.G. Lack. 2003c. Avian and Sensitive Species Baseline Study Plan and Final Report. Eurus Combine Hills Turbine Ranch, Umatilla County, Oregon. Technical report prepared for Eurus Energy America Corporation, San Diego, California and Aeropower Services, Inc., Portland, Oregon, by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. March 10, 2003.

Young, D.P. Jr., G.D. Johnson, V.K. Poulton, and K. Bay. 2007a. Ecological Baseline Studies for the Hatchet Ridge Wind Energy Project, Shasta County, California. Prepared for Hatchet Ridge Wind, LLC, Portland, Oregon by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. August 31, 2007. http://www.co.shasta.ca.us/Departments/Resourcemgmt/drm/Hatchet%20Ridge/DEIR/App_C-1.pdf

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Table 1. The land cover types, coverage, and composition on and within one mile (1.6 km) of the Novelution Chugwater Wind Resource Area.

Habitat	Acres	Percent
Project Area		
Developed, Open Space	71.19	2.6
Evergreen Forest	1.48	0.1
Scrub-shrub	617.93	22.8
Grassland	926.77	34.1
Crops	1,098.11	40.4
Total	**2,715.48**	**100**
Project Area and one-mile buffer		
Developed, Open Space	516.06	2.7
Barren	21.43	0.1
Evergreen Forest	27.63	0.2
Scrub-shrub	4,928.33	26.2
Grassland	6,471.70	34.4
Pasture/Hay	34.80	0.2
Crops	6,792.21	36.1
Woody Wetlands	12.71	0.071
Emergent Wetlands	5.30	<0.01
Total	**18,810.17**	**100**

Data from the National Landcover Database (USGS NLCD 2001).

Table 2. Summary of individuals and group observations for fixed-point bird use surveys at the Novelution Chugwater Wind Resource Area, July 1 – September 18, 2009.

		Summer	
Species/Type	**Scientific Name**	**# grps**	**# obs**
Waterfowl		**2**	**6**
blue-winged teal	*Anas discors*	1	3
green-winged teal	*Anas crecca*	1	3
Shorebirds		**8**	**18**
Baird's sandpiper	*Calidris bairdii*	2	8
killdeer	*Charadrius vociferus*	3	7
lesser yellowlegs	*Tringa flavipes*	1	1
upland sandpiper	*Bartramia longicauda*	2	2
Raptors		**44**	**44**
American kestrel	*Falco sparverius*	5	5
ferruginous hawk	*Buteo regalis*	1	1
merlin	*Falco columbarius*	1	1
northern harrier	*Circus cyaneus*	12	12
prairie falcon	*Falco mexicanus*	6	6
red-tailed hawk	*Buteo jamaicensis*	13	13
Swainson's hawk	*Buteo swainsoni*	6	6
Doves/Pigeons		**10**	**26**
mourning dove	*Zenaida macroura*	10	26
Passerines		**134**	**431**
barn swallow	*Hirundo rustica*	3	8
Brewer's blackbird	*Euphagus cyanocephalus*	1	13
chipping sparrow	*Spizella passerine*	1	2
cliff swallow	*Petrochelidon pyrrhonota*	1	6
European starling	*Sturnus vulgaris*	1	1
grasshopper sparrow	*Ammodramus savannarum*	9	9
horned lark	*Eremophila alpestris*	35	137
lark bunting	*Calamospiza melanocorys*	41	175
McCown's longspur	*Calcarius mccownii*	7	11
savannah sparrow	*Passerculus sandwichensis*	1	1
Sprague's pipit	*Anthus spragueii*	1	1
vesper sparrow	*Pooecetes gramineus*	5	7
western meadowlark	*Sturnella neglecta*	28	60
Other Birds		**1**	**2**
common nighthawk	*Chordeiles minor*	1	2
Overall		**199**	**527**

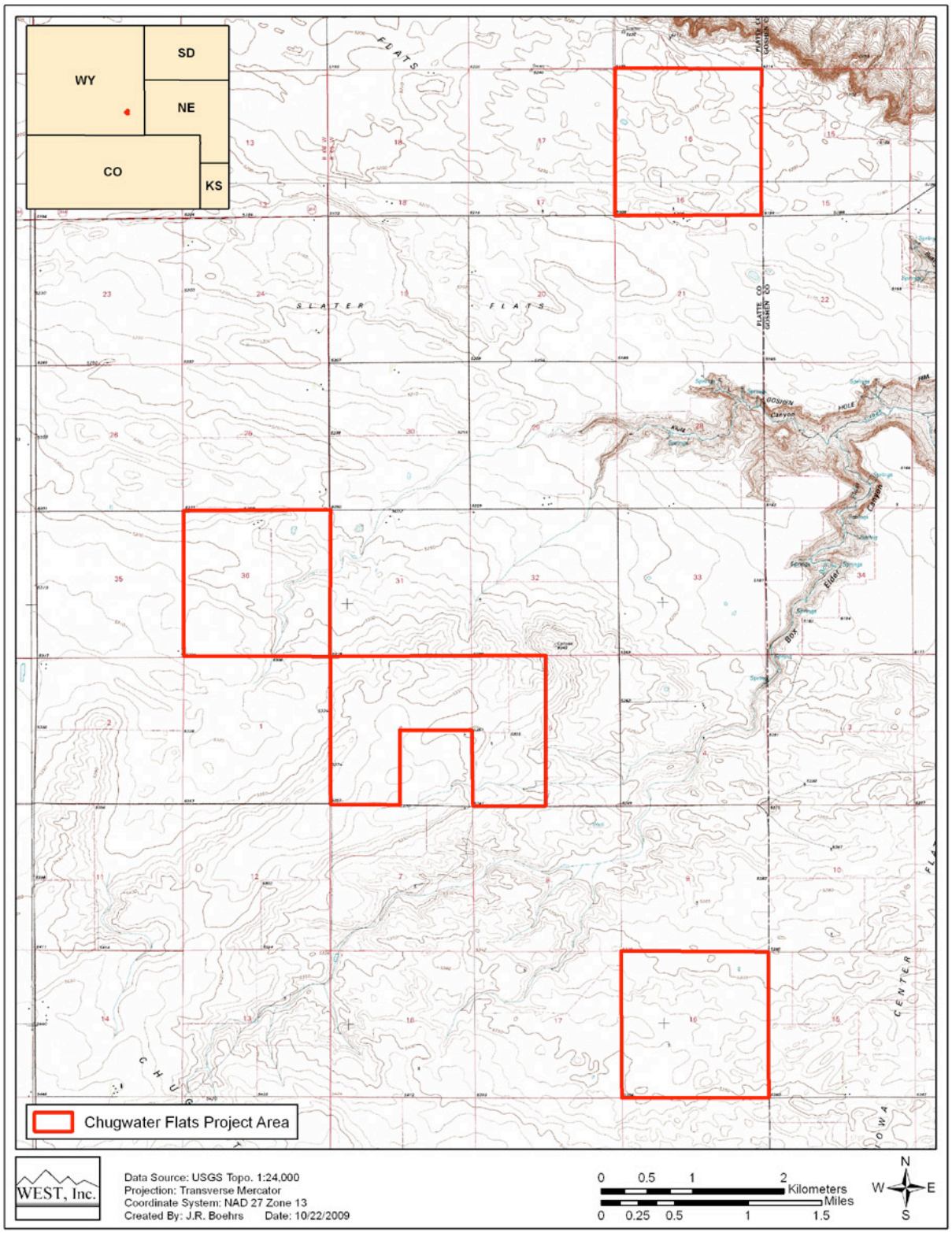


Figure 1. Location of the Novelution Chugwater Wind Resource Area.

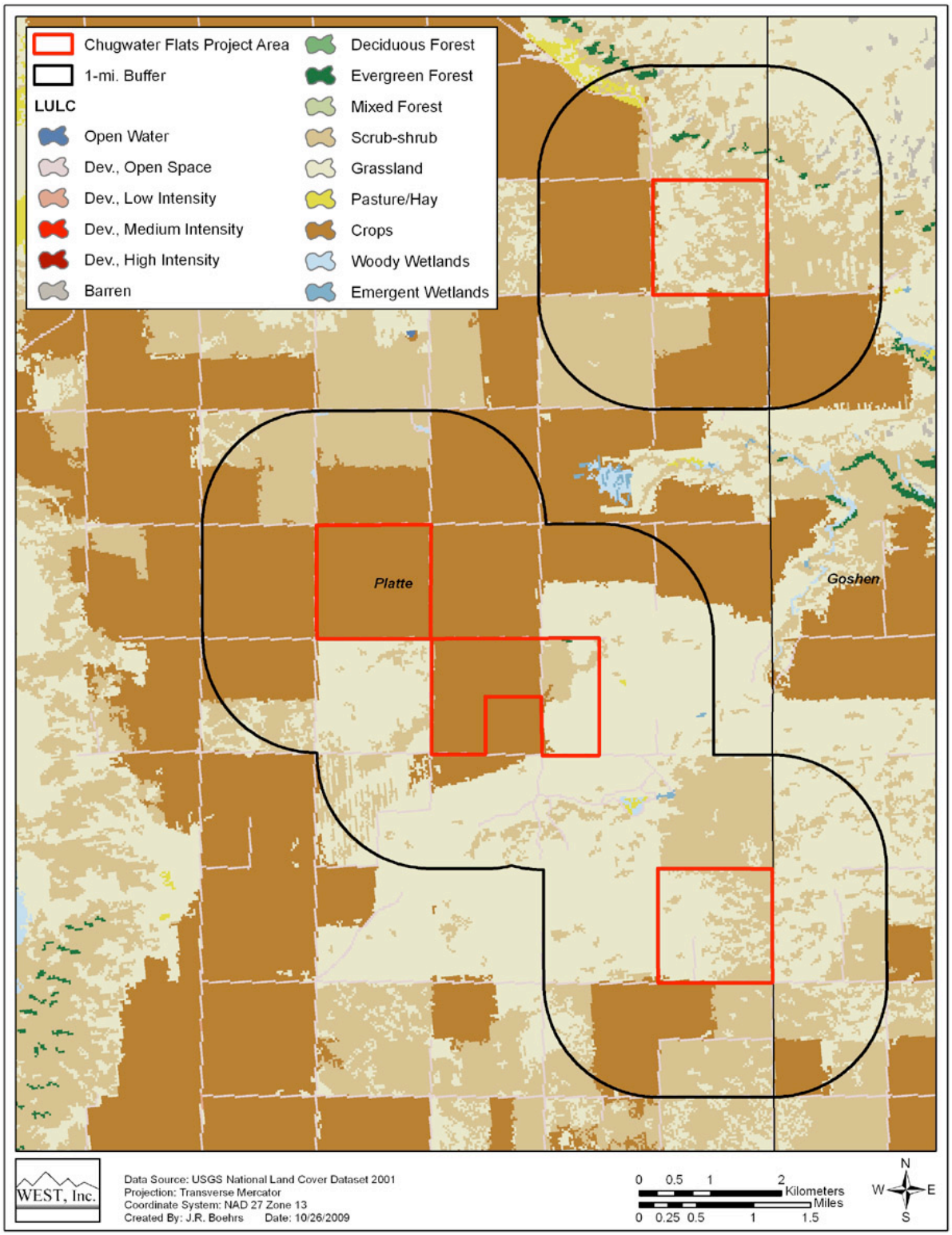


Figure 2. The land cover types and coverage within the Novelution Chugwater Wind Resource Area and a one-mile (1.6 km) buffer (USGS NLCD 2001).

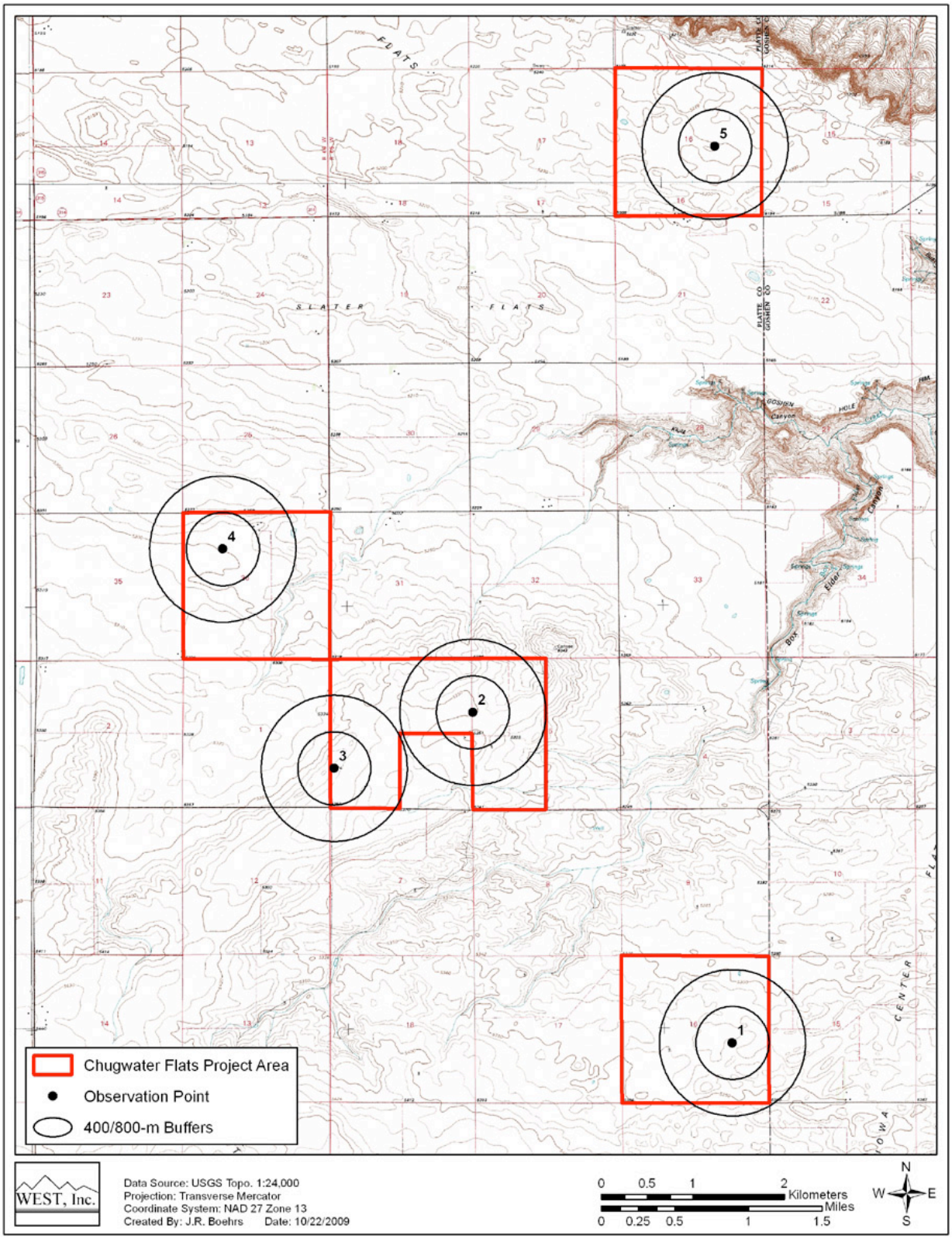


Figure 3. Fixed-point bird use observation locations at the Novelution Chugwater Wind Resource Area.

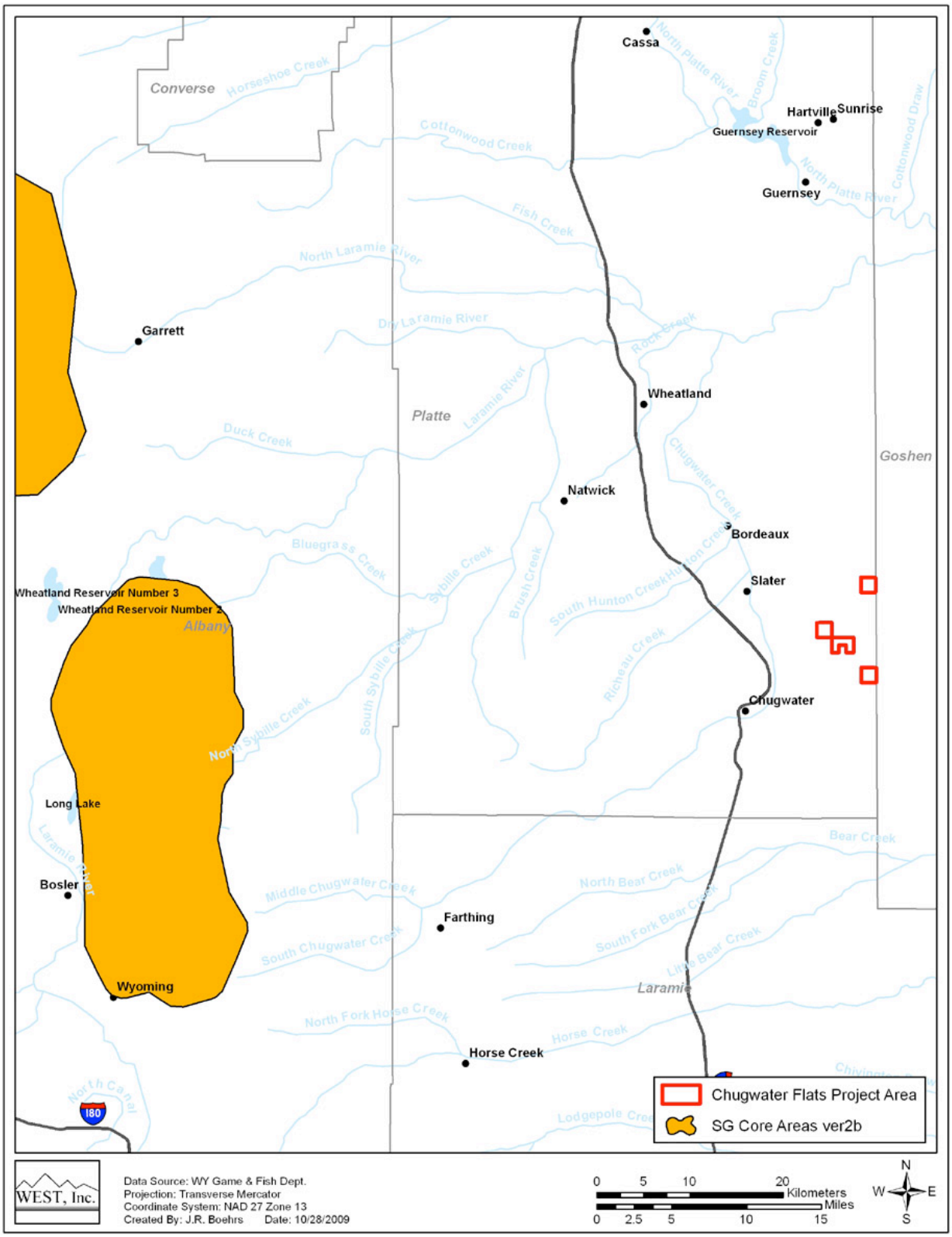


Figure 4. Greater sage-grouse core use areas in relation to the Novelution Chugwater Wind Resource Area.

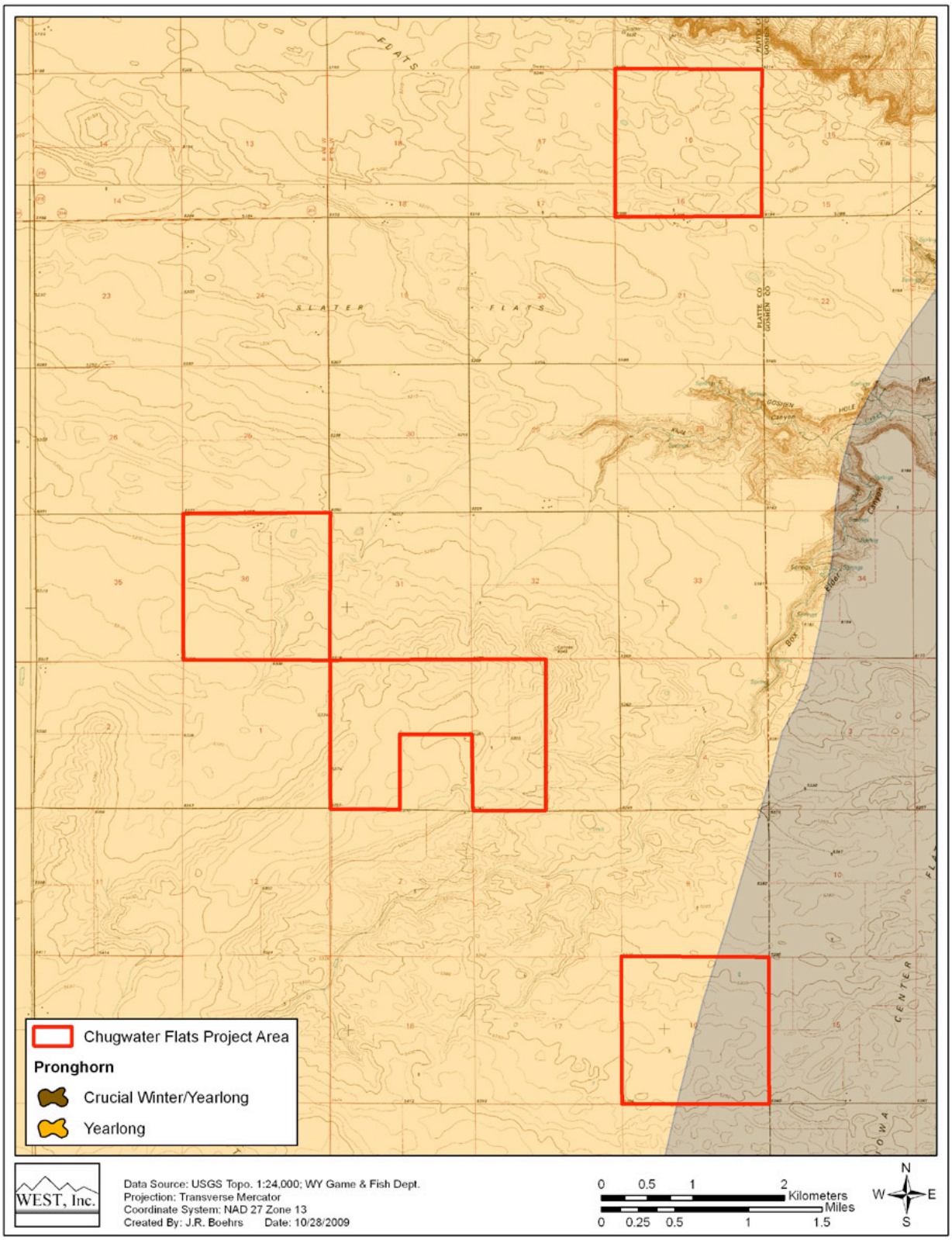


Figure 5. Pronghorn antelope ranges in relation to the Novelution Chugwater Wind Resource Area.

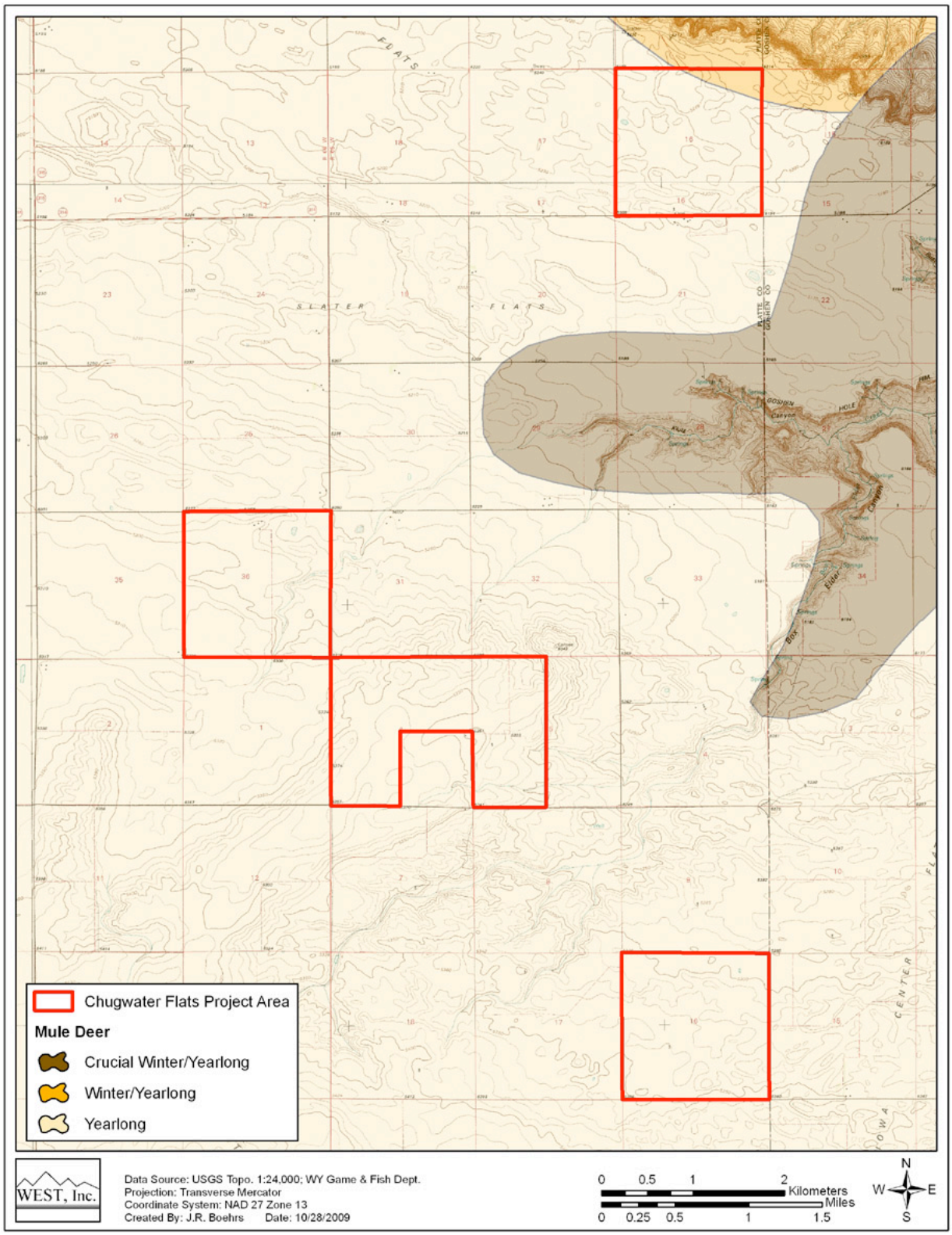


Figure 6. Mule deer ranges in relation to the Novelution Chugwater Wind Resource Area.

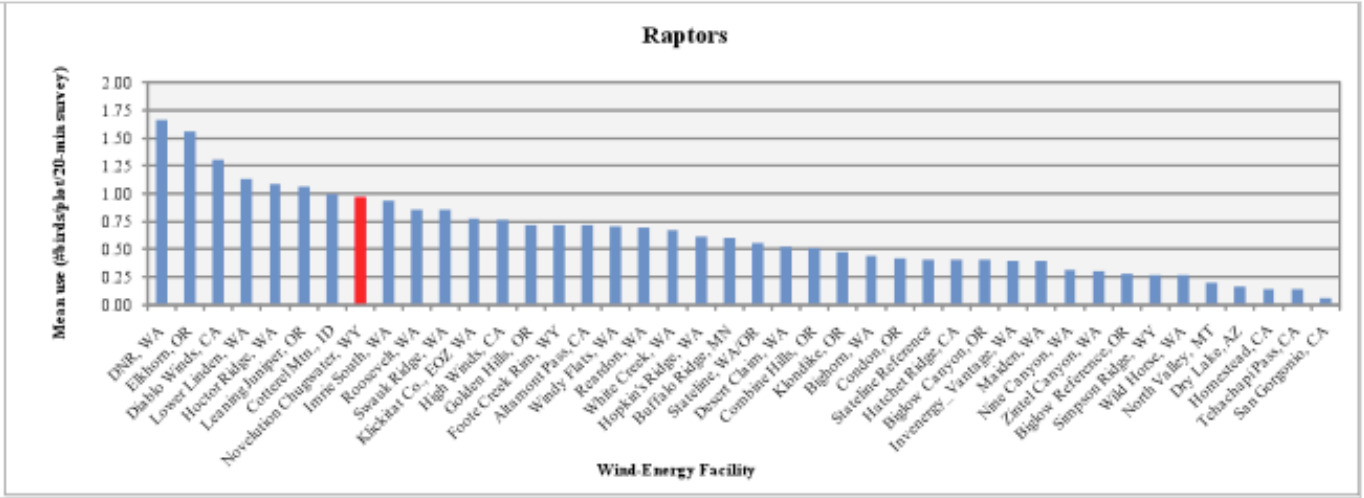


Figure 7. Comparison of summer raptor use between the Novelution Chugwater Wind Resource Area and other US wind-energy facilities.

Data from the following sources:

Novelution Chugwater, WY	This study.				
DNR, WA	Johnson et al. 2006a	White Creek, WA	NWC and WEST 2005	Simpson Ridge, WY	Johnson et al. 2000
Elkhorn, OR	WEST 2005a	Hopkin's Ridge, WA	Young et al. 2003a	Stateline Reference	URS et al. 2001
Diablo Winds, CA	WEST 2006a	Buffalo Ridge, MN	Erickson et al. 2002b	Hatchet Ridge, CA	Young et al. 2007a
Lower Linden, WA	Johnson et al. 2007a	Stateline, WA/OR	Erickson et al. 2002b	Biglow Canyon, OR	WEST 2005c
Hoctor Ridge, WA	Johnson et al. 2006b	Desert Claim, WA	Young et al. 2003b	Invenergy_Vantage, WA	WEST 2007
Leaning Juniper, OR	Kronner et al. 2005	Combine Hills, OR	Young et al. 2003c	Maiden, WA	Erickson et al. 2002b
Cotterel Mtn., ID	Cooper et al. 2004	Klondike, OR	Johnson et al. 2002	Nine Canyon, WA	Erickson et al. 2001b
Imrie, WA	Johnson et al. 2006c	Bighorn, WA	Johnson and Erickson 2004	Zintel Canyon, WA	Erickson et al. 2002a
Roosevelt, WA	NWC and WEST 2004	Condon, OR	Erickson et al. 2002b	Biglow Reference, OR	WEST 2005c
Swauk Ridge, WA	Erickson et al. 2003b	Stateline Reference	URS et al. 2001	Simpson Ridge, WY	Johnson et al. 2000
Klickitat Co., EOZ WA	WEST and NWC 2003	Hatchet Ridge, CA	Young et al. 2007a	Wild Horse, WA	Erickson et al. 2003a
High Winds, CA	Kerlinger et al. 2005	Biglow Canyon, OR	WEST 2005c	North Valley, MT	WEST 2006b
Golden Hills, OR	Jeffrey et al. 2008	Invenergy_Vantage, WA	WEST 2007	Dry Lake, AZ	Young et al. 2007b
Foote Creek Rim, WY	Erickson et al. 2002b	Maiden, WA	Erickson et al. 2002b	Homestead, CA	WEST et al. 2007
Altamont Pass, CA	Erickson et al. 2002b	Nine Canyon, WA	Erickson et al. 2001b	Tehachapi Pass, CA	Erickson et al. 2002b
Windy Flats, WA	Johnson et al. 2007b	Zintel Canyon, WA	Erickson et al. 2002a	San Gorgonio, CA	Erickson et al. 2002b
Reardon, WA	WEST 2005b	Biglow Reference, OR	WEST 2005c		

Novelution Chugwater Summer Interim Report

Western EcoSystems Technology, Inc. 18 November 3, 2009

A CLASS II CULTURAL RESOURCE INVENTORY OF THE NOVELUTION WIND LLC CHUGWATER FLATS WIND ENERGY PROJECT (PHASE 1) IN PLATTE COUNTY, WYOMING

NPAS PROJECT NO. 2009-14

By

Jon P. Frizell
Principal Investigator

Jeffrey Derks

and

Elizabeth Frizell

North Platte Archaeological Services
940 South Center Street
Casper, Wyoming 82601

Prepared for:
Novelution Wind LLC
P.O. Box 172
Chugwater, Wyoming 82210

Under the Provisions of
BLM Antiquity Permit
No. 175-WY-SR01

July 6, 2009

SURVEY REPORT COVER PAGE

Consultant Project No: 2009-14	Agency No:
Review and Compliance No:	Cultural Records Office No: 60146

AUTHORS: Jon Frizell, Jeffrey Derks, and Elizabeth Frizell
REPORT TITLE: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming
DATE OF REPORT (MO/DY/YR): 07/06/2009
LEAD AGENCY: None
SURVEY ORGANIZATION/NAME: North Platte Archaeological Services
FEDERAL PERMIT NO. 175-WY-SR01
DESCRIPTION OF UNDERTAKING: Class II Sample for proposed windfarm
SURVEY METHODS:
X Standard 30 meter Transects _Non-Standard (Describe in body of report) Survey Width (for Linear portion): 200 feet
COUNTY: Platte
USGS QUAD: Dickinson Hill, Klutz Canyon, and C S Ranch—Wyoming USGS 7.5' topographic maps,1990

LAND OWNER:* BLM BuREC NPS X PRIVATE X STATE
USFWS OTHER (Specify)

LEGAL DESCRIPTION (T/R/SEC):

BLOCK INVENTORY, BY LEGAL LOCATION (ACRES)

SAMPLE AREA	LEGAL LOCATION	STATE	PRIVATE	TOTAL
1	T20N-R65W SECTION 16—SW NW NE	10	0	10
3	T21N-R65W SECTION 16—SW SE	0	40	40
4	T21N-R65W SECTION 16—E NW NW NE, W NE NW NE, N NE NW (partial), & N S NE NW (partial)	0	20	20
5	T21N-R65W SECTION 5—W SW SE (partial) & E E SE SW (partial)	0	10	10
6	T21N-R65W SECTION 5—NW NW NW SW (partial) & W SW SW NW (partial)	0	4	4
6	T21N-R65W SECTION 6—S SE SE NE (partial) & N NE NE SE (partial)	0	6	6
7	T21N-R65W SECTION 6—S SE NW NW (partial), W SW SW NE NW (partial), NE SW NW (partial), N SE SW NW (partial), & W NW SW SE NW (partial)	0	20	20
8	T22N-R65W SECTION 16—NE NE NW	10	0	10
TOTAL		20	100	120

LINEAR INVENTORY, BY LEGAL LOCATION (FEET)

SAMPLE AREA	LEGAL LOCATION	STATE	PRIVATE	TOTAL
2	T20N-R65W SECTION 16	3,400	0	3,400
4	T21N-R65W SECTION 16	0	2,000	2,000
5	T21N-R65W SECTION 5	0	2,300	2,300
7	T21N-R65W SECTION 6	0	2,900	2,900
8	T22N-R65W SECTION 16	3,900	0	3,900
TOTAL		7,300	7,200	14,500

Block Inventory (State) ..... 20.00 acres
Block Inventory (Private Surface)..... 100.00 acres
Total Block Inventory ..... 120.00 acres

Linear Inventory (State Surface) ..... 7,300 feet ..... 1.38 miles ..... 33.45 acres
Linear Inventory (Private Surface) ..... 7,200 feet ..... 1.36 miles ..... 32.97 acres
Linear Inventory (Total) ..... 14,500 feet ..... 2.74 miles ..... 66.42 acres

Total Project Inventory ..... 186.42 acres

FILE SEARCH DATE: 06/22/09
FIELD WORK DATES: 06/23/09
FIELD PERSONNEL: Jon P. Frizell

SURVEY RESULTS: 2 SITES; 2 ISOLATED RESOURCES

SITE SUMMARY TABLE (Field Agent Use)

Smithsonian No./Isolated Resource No.	**48PL1701**	**48PL1702**	**IR1**	**IR2**
Brief site type	HISTORIC HOMESTEAD	HISTORIC RANCHING LOCI	HISTORIC DEBRIS	RETOUCHED FLAKE
Previously recorded? (Y/N?)	N	N	N	N
Previous Eligibility	N/A	N/A	N/A	N/A
Previous SHPO Concurrence (Y/N?)	N/A	N/A	N/A	N/A
Current Eligibility	NE	NE	NE	NE
NRHP Criteria (A,B,C, or D)	N/A	N/A	N/A	N/A
Contributing Portion? (Y/N?)	N/A	N/A	N/A	N/A
Current Project Effect?	NO	NO	NO	NO
Proposed mitigation or protective measures	NONE	NONE	NONE	NONE
Collections (Y/N)	N	N	N	N
Land Owner	PRIVATE SURFACE	PRIVATE SURFACE	STATE	STATE
Township	T21N	T21N	T21N	T21N
Range	R65W	R65W	R65W	R65W
Section	6	5	16	16
1/4	SE SE SE NE, SE SW SE SE NE, NE NW NE NE SE, and NE NE NE SE	NE NW SW SW SE	SE SW SW SW SE	SE NE SW SW SE
Comments				
user may add additional optional attributes from this point				

National Register of Historic Places eligibility: E **(Eligible);** NE **(Not Eligible);** U **(Unevaluated)**Eligibility Determination: R-**Listed on NRHP Register;** K-**Eligible by NRHP Keeper;** C-**Eligible-SHPO concurrence;** E-**Eligible-Consultant/Agency;** U-**Eligibility Unknown;** N-**Not eligible** Effect: NO **for sites with no effect;** NAE **for site with no adverse effects;** AE **for sites with adverse effect;** U **for Unknown**

Proposed mitigation: **e.g., data recovery, avoidance, fencing, sign, etc.**

*ATTACH CONTINUATION SHEETS AS NEEDED/EXPAND, ADD OR DELETE INDIVIDUAL SITE COLUMNS AS NECESSARY; Please list sites in alphabetical/numeric order first and isolates after the sites.

Note: Information about the location, character, or ownership of historic properties in the report may not be disclosed to the public unless authorized by the appropriate federal agency and/or the Wyoming State Historic Preservation Office.

NORTH PLATTE ARCHAEOLOGICAL SERVICES
940 SOUTH CENTER STREET
CASPER, WYOMING 82601

ABSTRACT: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming (NPAS Project No. 2009-14). Novelution Wind LLC proposes construction of Phase 1 of the Chugwater Flats Wind Energy Project on Private Surface Land and State of Wyoming Land within seven sections—specifically: in Township 20 North, Range 65 West, Section 16; in Township 21 North, Range 65 West, Sections 5, 6, and 16; in Township 21 North, Range 66 West, Section 1; in Township 22 North, Range 65 West, Section 16; and in Township 22 North, Range 66 West, Section 36. The project encompasses an expanse of near-flat to gently-rolling terrain across Chugwater Flats, an expansive plateau formation that commences about eight miles east of Chugwater, Wyoming. Before development commenced, North Platte Archaeological Services (NPAS) conducted a vehicular survey of the entire project area, and Class III Inventories of select "sample areas" within the project, to determine if cultural resources are present, and to evaluate any such resources for nomination to the National Register of Historic Places. Two sites and two isolated resources were encountered during the investigation; one previously-recorded site is on record for the project area. No sites are subject to impact from the proposed undertaking.

PROJECT DESCRIPTION: Novelution Wind LLC proposes construction of Phase 1 of the Chugwater Flats Wind Energy Project, in Platte County, Wyoming. The phase encompasses seven sections within three adjoining townships and two adjoining ranges—specifically: in Township 20 North, Range 65 West, Section 16; in Township 21 North, Range 65 West, Sections 5, 6, and 16; in Township 21 North, Range 66 West, Section 1; in Township 22 North, Range 65 West, Section 16; and in Township 22 North, Range 66 West, Section 36. Each section will accommodate a maximum of 20 turbines, and associated infrastructure. The project as a whole will commence with the installation of a total of 20 turbines, and subsequently expand within the Phase 1 sections. The project master plan envisions future, additional land leases and expansion into subsequent phases.

The Chugwater Flats Wind Energy Project is not a Federal undertaking—and, therefore, no Class III Inventory is mandated. Novelution Wind LLC has, however, contracted North Platte Archaeological Services (NPAS) to conduct a Class II Inventory across the project area. A Class I Inventory determined that none of the proposed project area has been subject to previous block inventory. A two phase Class II sampling strategy was therefore employed—which commenced with inspection of the overall area at issue by means of a vehicular survey, which facilitated selection of areas for subsequent Class III Inventory across a series of block parcels and along linear corridors.

The eight Class III sample inventories (which, as noted, comprise both block and linear parcels) and the legal locations thereof are shown on the accompanying Project Map, and in Tables 1 and 2, below:

TABLE 1—BLOCK INVENTORY, BY LEGAL LOCATION (ACRES)

SAMPLE AREA	LEGAL LOCATION	STATE	PRIVATE	TOTAL
1	T20N-R65W SECTION 16—SW NW NE	10	0	10
3	T21N-R65W SECTION 16—SW SE	0	40	40
4	T21N-R65W SECTION 16—E NW NW NE, W NE NW NE, N NE NW (partial), & N S NE NW (partial)	0	20	20
5	T21N-R65W SECTION 5—W SW SE (partial) & E E SE SW (partial)	0	10	10
6	T21N-R65W SECTION 5—NW NW NW SW (partial) & W SW SW NW (partial)	0	4	4
6	T21N-R65W SECTION 6—S SE SE NE (partial) & N NE NE SE (partial)	0	6	6
7	T21N-R65W SECTION 6—S SE NW NW (partial), W SW SW NE NW (partial), NE SW NW (partial), N SE SW NW (partial), & W NW SW SE NW (partial)	0	20	20
8	T22N-R65W SECTION 16—NE NE NW	10	0	10
TOTAL		20	100	120

TABLE 2—LINEAR INVENTORY, BY LEGAL LOCATION (FEET)

SAMPLE AREA	LEGAL LOCATION	STATE	PRIVATE	TOTAL
2	T20N-R65W SECTION 16	3,400	0	3,400
4	T21N-R65W SECTION 16	0	2,000	2,000
5	T21N-R65W SECTION 5	0	2,300	2,300
7	T21N-R65W SECTION 6	0	2,900	2,900
8	T22N-R65W SECTION 16	3,900	0	3,900
TOTAL		7,300	7,200	14,500

Block Inventory (State) ..... 20.00 acres
Block Inventory (Private Surface) ..... 100.00 acres
Total Block Inventory ..... 120.00 acres

Linear Inventory (State Surface) ..... 7,300 feet ..... 1.38 miles ..... 33.45 acres
Linear Inventory (Private Surface) ..... 7,200 feet ..... 1.36 miles ..... 32.97 acres
Linear Inventory (Total) ..... 14,500 feet ..... 2.74 miles ..... 66.42 acres

Total Project Inventory ..... 186.42 acres

MAP REFERENCE: Dickinson Hill, Klutz Canyon, and C S Ranch—Wyoming USGS 7.5' topographic maps,1990

DATE OF INVESTIGATION: 06/23/2009

FIELD PERSONNEL: Jon P. Frizell

ENVIRONMENTAL SETTING: The project area is located about eight miles east of Chugwater, Wyoming, across an expanse of near-flat to gently-rolling terrain along an expansive plateau formation—encompassing lands from Chugwater Flats, north, to Slater Flats. Klutz Canyon and headwaters of Box Elder Creek drain the eastern reaches of the plateau. Virtually all of the project area has been subject to cultivation (and much remains so)—with wheat fields, grass fields, and plowed (fallow) fields alternately in

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing blowout on low ridge crest at Sample Area 1, looking northeast. Photo by Jon Frizell 06/23/2009

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing typical gently rolling terrain along inventory corridor at Sample Area 2, looking east. Photo by Jon Frizell 06/23/2009

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing blowout/sandstone exposure on low ridge crest at Sample Area 3, looking northeast. Photo by Jon Frizell 06/23/2009

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing typical gently rolling terrain at Sample Area 4, looking northeast.Photo by Jon Frizell 06/23/2009

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing typical cultivated field (at Sample Area 7), looking north. Photo by Jon Frizell 06/23/2009

General project overview (A Class II Cultural Resource Inventory of the Novelution Wind LLC, Chugwater Flats Wind Energy Project (Phase I), in Platte County, Wyoming). General project overview showing low ridge at Sample Area 8, looking east. Photo by Jon Frizell 06/23/2009

evidence throughout. Indeed, across the area as a whole, only small, isolated sandstone exposures and rocky outcrops are apparently undisturbed.

Maximum slopes within the project area range to a mere three degrees, and the aspect is variable. Elevation ranges from 5,190 feet to 5,450 feet.

A few of the local agricultural fields that have not been subject to recent cultivation are re-vegetating with native species—including fringed sage, narrow-leaf yucca, and various grasses and forbs. Recently cultivated fields are void of vegetation—and offer excellent visibility. Active fields, in contrast, exhibit generally dense vegetation, and correspondingly poor to moderate visibility. In general, surface visibility at the time of the inventory ranged from approximately 40% to 70%—and averaged, overall, around 50%.

Owing to prolonged cultivation (spanning decades), the potential for buried cultural materials is considered to be extremely low (or even non-existent) across most of the area subject to investigation.

Recreational use is predominantly related to hunting. The environment could support antelope, rabbit, and mule deer.

BACKGROUND RESEARCH: A file search for the project was obtained on 06/22/2009. In addition, on-line research of the project area was conducted at the website of the Wyoming Cultural Resources Information System. The State File Search lists no projects for sections occupied by the proposed undertaking. One site is currently on record: 48PL180, the Camp Wallch [sic]-Fort Laramie Road, identified in Township 21 North, Range 65 West, Section 6, by the Wyoming Recreation Commission/Historic Division during the Historic Sites Archival Survey. (No information concerning this historic road is available from the WYCRIS database.)

The available GLO plats, dating from 1872, 1874, and 1877, depict no infrastructure of historic import in the sections of concern.

Owing to the scant character of the existing database, an expected site density could not be formulated. Anticipated site types included prehistoric open camps and lithic scatters, and historic homesteads and stocktending camps. Prehistoric sites, if encountered, were expected to be situated along adjacent to major ridges.

SURVEY METHODOLOGY: As previously noted, a two-phase Class II sampling strategy was employed for the investigation—commencing with inspection of the overall area at issue by means of a vehicular survey, which facilitated selection of areas for subsequent Class III Inventory, the latter being conducted across a series of block parcels and along linear corridors.

Three criteria governed the selection of Class III Sample Areas: (1) The extent and spatial character of the project area—comprising a total of seven sections, four being contiguous, but the total otherwise dispersed across a 72 square-mile area—effectively necessitated samples in each of the non-contiguous sections, as well as in one or more of those sections comprised by the contiguous series; (2) the location of the two historic sites (which were first encountered in the course of the vehicular survey) suggested

additional investigation of adjoining lands; and (3) areas considered to offer significant potential for surficial cultural resources—that is, ridge crests, sandstone exposures, blowouts, and areas adjacent to playa lakes—also warranted additional investigation.

Class III Inventory was conducted by means of successive 30 meter transects, across a series of block parcels and along linear corridors. Zigzagging search patterns were employed to enhance surface coverage along the transects. Localities exhibiting topographic and environmental conditions suggestive of a higher site probability were subjected to more intensive inspection. Erosional areas, cut banks, or areas otherwise displaying subsurface soil were also carefully examined for evidence of buried cultural materials. Visibility at the time of the inventory ranged from approximately 40% to 70%—and averaged, overall, around 50%.

INVENTORY RESULTS: Two historic sites and two isolated resources were encountered during the investigation.

NEWLY RECORDED SITES

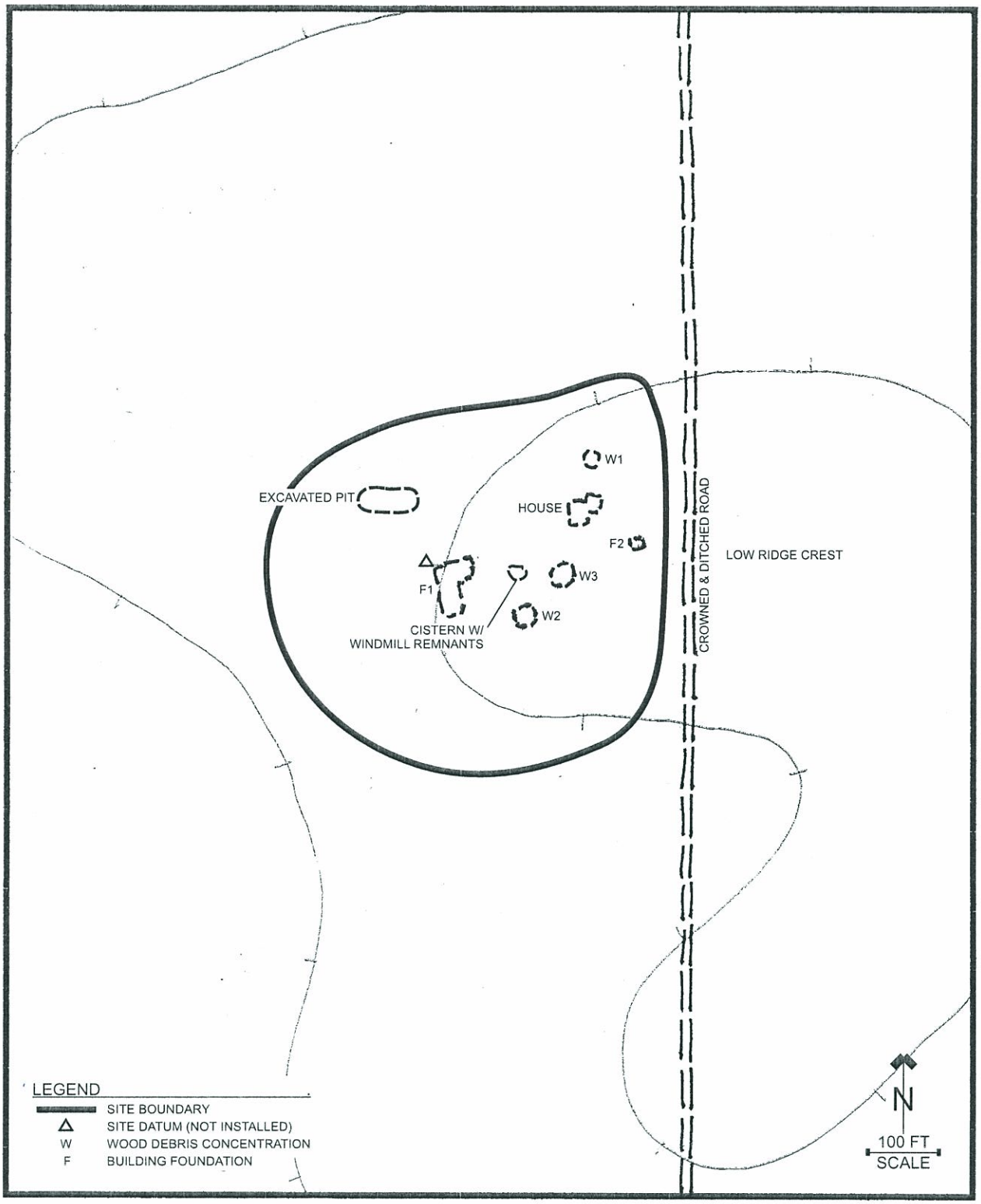
Smithsonian #48PL1701
Temporary Field Number **2009-14-1**

LOCATION
County: Platte
USGS Map: 7.5' Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 6—SE SE SE NE, SE SW SE SE NE, NE NW NE NE SE, and NE NE NE SE (Template at SE, on E section line.)
Elevation (ft.): 5,350
UTM: Zone 13 525516mE 4629924mN (no physical datum installed)
Datum used to calculate: NAD83

NARRATIVE DESCRIPTION: A historic homestead, evidenced by one house, two building foundations, three concentrations of wood scraps, remnants of a cistern/windmill, one stock tank, and a dispersed scatter of associated debris. Site is located on a low rise in the north-central portion of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming. A shallow wash that forms the headwaters of Box Elder Creek is situated about one-half mile east. A modern crowned and ditched road traverses a north-south axis (along the section line) immediately proximal to the east perimeter of the site. Gently-rolled terrain encompasses the site for a distance of about one-half mile in all directions.

Elevation is 5,350 feet; slope is 1°, and the predominant aspect is 90°. Surface soil is light-brown clayey silt throughout the site. The nearest potential water source is a shallow wash that forms the headwaters of Box Elder Creek, about one-half mile east. Vegetation consists of grasses and a variety of introduced trees and shrubs—all in generally high-density distributions.

The House feature, situated near the north perimeter of the site, is an intact, two-room building, with two wood frame additions, each wholly collapsed. The intact building is composed of poured concrete and measures about 30 feet square. Interior walls evidence plaster remnants; the interior wall, spanning east-west, incorporates 2x4 wood



48PL1701—SITE MAP

48PL1701 General site overview, looking south. Photo by Jon Frizell 06/23/2009

48PL1701 View of house, looking south. Photo by Jon Frizell 06/23/2009

48PL1701 View of house (and collapsed addition), looking east.
Photo by Jon Frizell 06/23/2009

48PL1701 View of house, looking north. Photo by Jon Frizell 06/23/2009

48PL1701 View of windmill and cistern, looking southwest.
Photo by Jon Frizell 06/23/2009

48PL1701 View of Woodpile 1, looking east. Photo by Jon Frizell 06/23/2009

48PL1701 View of Woodpile 2, looking southeast. Photo by Jon Frizell 06/23/2009

framing, and effectively bisects the interior space. The pitched roof, also largely intact, is constructed of milled lumber. Wood-frame door openings are located in the south and east walls, and window openings, in all walls; doors and window panes are, however, absent. A few pieces of stove pipe and one bed spring are located within the feature. At the exterior, remnants of two wood-frame additions are collapsed and slumped against the intact building at an angle of about 45°--each consisting of milled lumber elements occupying an area about 20 feet square and extending to a height of two to three feet. Remnants of framed walls and roof assemblies are evident within the collapsed remains.

Foundation 1, of poured concrete, measures approximately 65 feet north-south by 50 feet east-west and extends to a depth of six to eight feet. While no remnants of a superstructure are in evidence, it can be presumed that such consisted of a wood-frame building—perhaps a barn (in light of the proportions of the feature).

Foundation 2, also of poured concrete, measures approximately 30 feet north-south by 30 feet east-west and extends to a depth of six to 10 feet. While no remnants of a superstructure are in evidence, it can be presumed that such consisted of a wood-frame building—such as, perhaps, a root cellar or storm shelter.

The Cistern/Windmill complex features a cylindrical cistern of poured concrete, about 10 feet in diameter and 15 feet tall. Remnants of a wooden derrick windmill are located adjacent to the structure. An excavated pit, measuring about 100 feet east-west by 50 feet north-south and extending to a depth of about 10 feet, is located approximately 120 feet northwest of the complex, and is probably associated—perhaps functioning as a water source for livestock.

Three concentrations of wood scraps are dispersed across the east half of the site: each ranges from 15 to 20 feet in diameter, from one to two feet tall, and comprises scraps of milled lumber, of varying dimensions. The features may represent collapsed out buildings or simply discarded remnants of dismantled structures.

Additional debris, dispersed across the site in varying densities, includes: fragments of a sheet metal, three-burner gas stove. with "Mascot" embossed on the top; numerous automobile parts; one galvanized wash tub; nondescript scraps of milled lumber and wire; and a few clear glass bottles and sanitary cans.

Records research for the present locale identified the site as the original "Burhan Homestead"—which family acquired a sizable amount of land within the region, beginning in the Depression Era, finally amassing a total of about 3,000 acres. Based on the historic record and artifact cross-dating, the homestead was established in the mid-1920's and occupied into the 1960's.

Recorder NRHP Evaluation: Not Eligible
Justification: The site is considered to be ineligible primarily because it fails to meet "criteria d"—owing to the low research potential deriving from the commonplace nature and generally decrepit condition of the site features and artifacts. In addition, the site is not associated with an important historic event or pattern of events (except in the broadest sense of settling the area under the Homestead Act of 1862), as required under "criteria a"; nor is the site associated with a person important beyond the local level, as stipulated by "criteria b"; and, finally, the site clearly fails to meet "criteria c", association with architecture that embodies distinctive characteristics.

EVALUATION OF EFFECT: The site will not be impacted by the proposed undertaking.

RECOMMENDATIONS: No further work is recommended.

Smithsonian #48PL1702
Temporary Field Number **2009-14-2**

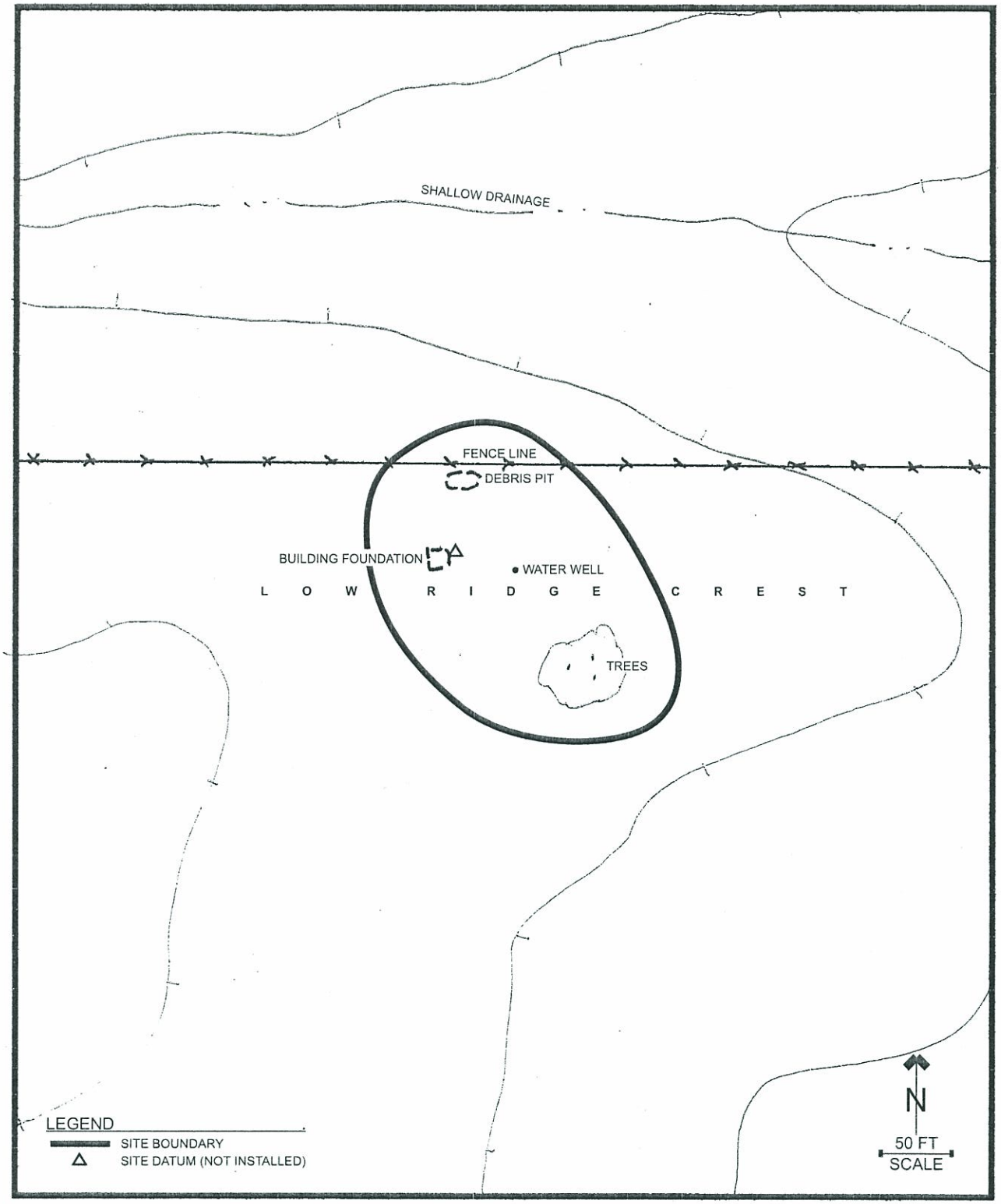
LOCATION
County: Platte
USGS Map: 7.5' Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 5—NE NW SW SW SE (Template at SE.)
Elevation (ft.): 5,280
UTM: Zone 13 526436mE 4629266mN (no physical datum installed)
Datum used to calculate: NAD83

NARRATIVE DESCRIPTION: A historic ranching loci, evidenced by one concrete foundation, one water well, one debris concentration, and a dispersed scatter of additional commonplace debris. Site is located on a low rise in the eastern reaches of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming. A shallow wash integral to the headwaters of Box Elder Creek trends west-east, about 200 feet north. A modern crowned and ditched road traverses an east-west axis (along the section line), about 500 feet south of the site, while a modern fence line proceeds the same direction, immediately within the north perimeter of the site. Gently-rolling terrain encompasses the site.

Elevation is 5,280 feet; slope is 1°, and the predominant aspect is 90°. Surface soil is light-brown clayey silt. The nearest potential water source is a shallow wash integral to the headwaters of Box Elder Creek, about 500 feet north; a small playa is located about one-quarter mile to the southeast. Vegetation consists of grasses in generally high-density distributions—and a stand of three elm trees, in-situ.

The Foundation feature measures about 33 feet square, and is subdivided into four quadrants. The two eastern segments and a portion of the north and west segments are of formed, poured concrete, while the remainder is composed of mortared sandstone clasts. At the east half, the poured walls extend to a depth of at least five feet (presumably to accommodate a subsurface space); at the west, to a considerably lesser depth, of one to two feet. The subsurface area in the east half of the feature contains an assortment of mundane debris, including numerous barrels, wood scraps, lengths of wire, milled lumber scraps of varying dimensions, and a considerable amount of miscellaneous residential debris—consisting primarily of uncolored glass bottles and sanitary cans, with several discarded electrical appliances and a stack of at least 10 Wyoming truck license tags, dating from 1950 to 1960, also in evidence.

The Water Well is evidenced by a closed concrete cylinder, about six feet in diameter, with a rough finish, and which extends about 24 inches above the modern ground surface. An iron pipe, four inches in diameter, extends from the top of the cylinder by a distance of about one-half inch, and is encompassed by four evenly-spaced bolts, embedded about one inch distant, that also extend about one-half inch above the concrete surface. The perimeter of the concrete cylinder is wholly encased within a metal sleeve. No debris is evident in association.



48PL1702—SITE MAP

48PL1702 General site overview, newly recorded site 48PL1701 (The Burhan Homestead) at trees in photo background, looking west. Photo by Jon Frizell 06/23/2009

48PL1702 Distant site overview (Site at trees on crest in photo background, looking west-northwest. Photo by Jon Frizell 06/23/2009

48PL1702 View of concrete house foundation, looking east.
Photo by Jon Frizell 06/23/2009

48PL1702 View of trash filled pit, looking northwest. Photo by Jon Frizell 06/23/2009

48PL1702 View of trash filled northeastern room of house foundation, looking south.
Photo by Jon Frizell 06/23/2009

48PL1702 View of capped well, looking north. Photo by Jon Frizell 06/23/2009

A debris pit about 70 feet north of the foundation feature contains numerous barrels and 5-gallon buckets; one discarded dishwasher; multiple rolls of various types of wire; one metal livestock tank; numerous wooden fence scraps; various scraps of milled lumber and wire; and some miscellaneous residential debris, consisting primarily of uncolored glass bottles and sanitary cans.

Additional debris, dispersed across the site, includes nails of varying sizes and types, and a few bricks.

Records research for the present locale identified the site as a satellite of the original "Burhan Homestead", site 48PL1701, located about 3/4 mile to the northwest. The Burhan family acquired a sizable amount of land within the region beginning in the Depression Era, finally amassing a total of about 3,000 acres. Based on the historic record and artifact cross-dating, the original homestead was established in the mid-1920's and occupied into the 1960's. Judging by the in-situ debris, the present site was probably occupied from the mid-1920's to the 1950's—presumably by an extended member or employee of the Burhan family—and was evidently employed as a debris disposal site subsequent to abandonment.

Recorder NRHP Evaluation: Not Eligible
Justification: The site is considered to be not eligible primarily because it fails to meet "criteria d"—owing to the low research potential deriving from the commonplace nature and generally decrepit condition of the site features and artifacts. In addition, the site is not associated with an important historic event or pattern of events (except in the broadest sense of settling the area under the Homestead Act of 1862), as required under "criteria a"; nor is the site associated with an important person, as stipulated by "criteria b"; and, finally, the site clearly fails to meet "criteria c", association with architecture that embodies distinctive characteristics.

EVALUATION OF EFFECT: The site will not be impacted by the proposed undertaking.

RECOMMENDATIONS: No further work is recommended.

ISOLATED RESOURCES

Field No. IR1

Location
County: Platte
USGS 7.5' Map: Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 16—SE SW SW SW SE (Template at SE.)
Elevation (ft): 5,350
UTM: Zone 13 528102mE 4625909mN
Datum used to calculate: NAD 83 / UTM source: GPS Meter (Garmin)

Environmental Description: Located on a minor rise along the north face of a broad, low, east-west oriented ridge system, overlooking a small playa to the immediate north. An improved road (overgrown with vegetation) traverses an east-west axis (along the section line) about 200 feet south of the resource. Surface soil is compacted, light-brown clayey sand with a low-density armoring of sandstone fragments; intact sandstone

Isolated Resoruce 1 View of resource locale, looking east-northeast.
Photo by Jon Frizell 06/23/2009

Isolated Resoruce 1 View of aqua bottle glass. Photo by Jon Frizell 06/23/2009

bedrock is intermittently exposed across the vicinity. Vegetation consists of sagebrush, prickly pear, forbs, and various native and introduced grasses—all in generally medium-density distributions. Elevation is 5,350 feet; slope is 2°, and the aspect is 350°. The nearest potential water source is a playa lake, about 500 feet north.

Resource Description: Four shards of aqua bottle glass, each less than one inch across, located within an area approximately three meters in diameter area. Discard probably occurred during the late Expansion Era or Depression Era.

Field No. IR2

Location
County: Platte
USGS 7.5' Map: Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 16—SE NE SW SW SE (Template at SE.)
Elevation (ft): 5,350
UTM: Zone 13 528214mE 4625981mN
Datum used to calculate: NAD 83 / UTM source: GPS Meter (Garmin)

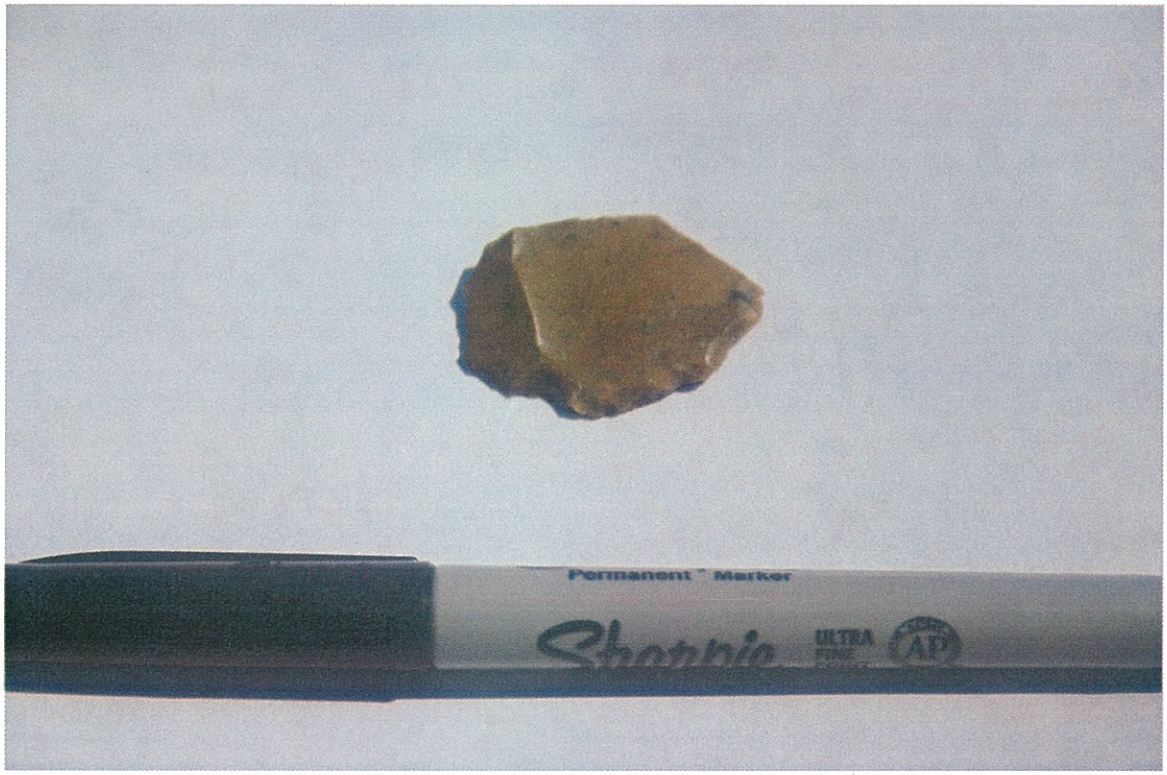
Environmental Description: Located on a minor rise along the north face of a broad, low, east-west oriented ridge system, overlooking a small playa to the immediate north. An improved road (overgrown with vegetation) traverses an east-west axis (along the section line) about 200 feet south of the resource. Surface soil is compacted, light-brown clayey sand with a low-density armoring of sandstone fragments; intact sandstone bedrock is intermittently exposed across the vicinity. Vegetation consists of sagebrush, prickly pear, forbs, and various native and introduced grasses—all in generally medium-density distributions. Elevation is 5,350 feet; slope is 2°, and the aspect is 350°. The nearest potential water source is a playa lake, about 300 feet to the northwest.

Resource Description: An expedient tool, fashioned from a complete tertiary core flake of butterscotch chert, and measuring 35 x 25 x 8 millimeters; the artifact evidences unifacial retouch along one lateral edge margin. No buried cultural materials or features are thought to exist within the vicinity of the resource, since: (1) No surface evidence (such as stains or cultural substratum at local cut banks) is apparent; and (2) the geomorphic setting, characterized by generally shallow depositions, suggests a negligible potential for such.

CONCLUSIONS/SUMMARY

The two-phase Class II sampling strategy invoked for the investigation was successful in assessing the potential for cultural resources within the project area. Historic resources including homesteads and ranching loci were readily discernable during the initial, vehicular investigation; at the same time, it was determined that virtually all of the proposed project area has been subject to cultivation—with wheat fields, grass fields, and plowed (fallow) fields alternately in evidence throughout. Owing to protracted cultivation (spanning decades), it is hypothesized that the potential for buried cultural materials is extremely low, perhaps even non-existent, across the project area. Throughout across the area, only small isolated sandstone exposures and rocky

Isolated Resoruce 1 View of resource locale, looking west.
Photo by Jon Frizell 06/23/2009



Isolated Resoruce 1 View of retouched flake. Photo by Jon Frizell 06/23/2009

outcrops remain apparently undisturbed. The results of the Class III Inventory support the low-potential hypothesis, since all of the documented resources are located in uncultivated areas—the two historic occupation sites each containing features that in and of themselves function as natural "buffers" against agricultural operations. Similarly, the two isolated resources are situated within an area of sandstone exposures in no way susceptible to cultivation.

While no cultural resources were encountered in cultivated areas, it is conceivable that such do exist. If present, however, such resources would lack stratigraphic integrity and uncompromised features—and yield, in the main, only artifacts displaced within the soil of the plow-zone.

In sum, then, two new sites and two isolated resources were encountered during the investigation. Apart from vegetation cover (and the impact of cultivation), no significant constraints to discovery were encountered during the inventory, and survey reliability is considered to be good. There are no obvious indications of buried cultural materials within the project area; as noted, the potential for buried cultural material is considered to be negligible throughout the project area, owing to extensive cultivation.

PROJECT RECOMMENDATIONS: No further work is recommended for Novelution Wind LLC on the Chugwater Flats Wind Energy Project (Phase 1) in Platte County, Wyoming. If, however, buried cultural materials are encountered during mining operations, work will cease, and immediate notification provided to the State of Wyoming Historic Preservation Office.

PROJECT PARAMETERS:

Block Inventory (State)			20.00 acres
Block Inventory (Private Surface)			100.00 acres
Total Block Inventory			120.00 acres
Linear Inventory (State Surface)	7,300 feet	1.38 miles	33.45 acres
Linear Inventory (Private Surface)	7,200 feet	1.36 miles	32.97 acres
Linear Inventory (Total)	14,500 feet	2.74 miles	66.42 acres
Total Project Inventory			186.42 acres

CERTIFICATION: The above investigation was conducted under Antiquity Permit No. 175-WY-SR01 and conforms to all applicable State and Federal legislation including Executive Order No. 11593.

Jon P. Frizell

Jon P. Frizell

Principal Investigator

RECORD TYPE: X First-recording _Full Re-record _Update _Condition Report _Site Lead

PROPERTY CATEGORY: _Prehistoric Site X Historic Site _Building _Structure _Object _District _Landscape _Lithic Landscape _TCP

1. IDENTIFICATION/OWNERSHIP

Consultant Project Number: 2009-14
Agency Project Number(s): WYCRO #60146
Associated Project Name: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming
Site Name: N/A Temporary Field Number **2009-14-1**
Other Common names: N/A Agency Site Number
Other Site Number:
Landowner (at time of this reporting) Private

2. LOCATION

Town (if in city limits): N/A County: Platte
USGS Map: 7.5' Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 6—SE SE SE NE, SE SW SE SE NE, NE NW NE NE SE, and NE NE NE SE (Template at SE, on E section line.)
Elevation (ft.): 5,350
UTM: Zone 13 525516mE 4629924mN (no physical datum installed)
Datum used to calculate: NAD83
UTM source: GPS field reading
GPS Model/Software: Lowrance I-Finder
Notes pertaining to access:

3. NATIONAL REGISTER STATUS (check all that apply in each category):

ENROLLED STATUS: _Landmark/Monument _Enrolled on NRHP

FACTORS AFFECTING INTEGRITY
_Disturbance/Vandalism X erosion _vandalism _collection _structural damage _excavation, manual _excavation, mechanical _vehicle traffic X structural decay X grazing _construction/development _defacement _imminent destruction _unknown

Percent of property badly disturbed as of this recording date (to nearest 10%): 0%

NATIONAL REGISTER OF HISTORIC PLACES SIGNIFICANCE
Period(s) of significance: N/A Theme(s): N/A
NRHP Significance: _Eligible X Not eligible _Unknown (needs data)
How determined: Initial Evaluation
Level of Significance: N/A How determined: N/A
Theme(s): N/A How determined: N/A

NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILTY RECOMMENDATIONS

Recorder NRHP Evaluation: _Eligible under criteria _a _b _c _d X Not Eligible _Unevaluated
Contributing Components: _Prehistoric _Historic
Justification: The site is considered to be ineligible primarily because it fails to meet "criteria d"—owing to the low research potential deriving from the commonplace nature and generally decrepit condition of the site features and artifacts. In addition, the site is not associated with an important historic event or pattern of events (except in the broadest sense of settling the area under the Homestead Act of 1862), as required under "criteria a"; nor is the site associated with a person important beyond the local level, as stipulated by "criteria b"; and, finally, the site clearly fails to meet "criteria c", association with architecture that embodies distinctive characteristics.

Agency Determination: _Eligible under criteria _a _b _c _d _Not Eligible _Unevaluated
Date/initials:_____ Justification:
SHPO Concurrence: _Eligible under criteria _a _b _c _ d _Not Eligible _Unevaluated
Date/initials:_____ Justification:

4. INVESTIGATIVE HISTORY

Recorded by: Jon P. Frizell
Organization: North Platte Archaeological Services
Field Dates: 06/23/2009

DISCOVERY METHOD

X Exposed on surface _Exposed subsurface _Construction discovery _Documentary sources _Informant

WORK PERFORMED

X Surface recorded _Shovel tested _Formal test unit(s) _Block excavation _Tested with probe device _Controlled _Trench/Blade _Geomorphology study _Paleo-environmental study _Materials sourcing _Remote sensing X Photos/Sketches/Video _Collections Research _Lab analyses _Material sample program _C-14 dating _Other(describe)

MATERIALS COLLECTED AS PART OF THIS RECORDING? _yes X no _unknown
Repository: N/A

5. PROPERTY DESCRIPTION

Length 63 m Width 57 m Area 3,591 sq. m (_estimated X measurement method: paced)
Boundary estimates based on: Feature and artifact distribution
Property datum? _no X yes (describe) A 12 inch bridge spike with an aluminum tag labeled with the temporary site number

RECORDS INVENTORY

Required Attachments

X (6) Prehistoric/Historic Archaeological Site Setting, Topography, Depositional Environment
X (7) Site Narrative Description
X (8) Prehistoric/Historic Site Matrix
X site map w/scale, orientation, key
X location map (USGS 1:24,000 base)
X photographs/images

Additional Attachments
_(8A) artifacts associated with prehistoric component _(8B) features associated with prehistoric component X (8C) artifacts associated with historic component X (8D) features associated with historic component _(8E) historic and/or prehistoric rock art/inscription component _(8F) historic architecture description _(8G) linear feature description _(8H) lithic landscape sample description _(8I) historic structure/object description

6. SITE SETTING, TOPOGRAPHY, DEPOSITIONAL ENVIRONMENT

GENERAL TOPOGRAPHIC SETTING: Mountain/Major Uplift
Geographic Division: Hartville Uplift

UNIQUE SITE SETTING (check as appropriate, describe site setting in general narrative):
_playa _arroyo/cutbank _rock shelter _spring _saddle/pass _cliff _cave

GENERAL TOPOGRAPHIC SETTING: Site is located on a low rise in the north-central portion of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming.

VEGETATION ASSOCIATION: Sagebrush Steppe

OVERALL PERCENT BARE GROUND (discuss variation in ground visibility in general site description narrative):
_0% X 1-25% _26-50% _51-75% _76-99% _100% _unknown _not applicable

GENERAL DEPOSTIONAL ENVIRONMENT (check all applicable):
_unknown _aeolian _alluvial X colluvial _bare rock _regolith _not applicable _other (describe):

AEOLIAN SETTINGS
Is site in/partly in an aeolian deposit? _yes X no _unknown _not applicable
If "yes", which type? _dune _sand shadow _sand sheet _deflation area _don't know

SUBSURFACE POTENTIAL
Archaeological subsurface deposits: _yes _no X unknown

Maximum depth of deposits:
_meters _unknown _not applicable

Estimate based on: _rough guess _shovel test(s) _core/auger tests _excavation(s) _road/arroyo cuts _animal burrows _other information:

7. NARRATIVE DESCRIPTION: A historic homestead, evidenced by one house, two building foundations, three concentrations of wood scraps, remnants of a cistern/windmill, one stock tank, and a dispersed scatter of associated debris. Site is located on a low rise in the north-central portion of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming. A shallow wash that forms the headwaters of Box Elder Creek is situated about one-half mile east. A modern crowned and ditched road traverses a north-south axis (along the section line) immediately proximal to the east perimeter of the site. Gently-rolled terrain encompasses the site for a distance of about one-half mile in all directions.

Elevation is 5,350 feet; slope is 1°, and the predominant aspect is 90°. Surface soil is light-brown clayey silt throughout the site. The nearest potential water source is a shallow wash that forms the headwaters of Box Elder Creek, about one-half mile east. Vegetation consists of grasses and a variety of introduced trees and shrubs—all in generally high-density distributions.

The House feature, situated near the north perimeter of the site, is an intact, two-room building, with two wood frame additions, each wholly collapsed. The intact building is composed of poured concrete and measures about 30 feet square. Interior walls evidence plaster remnants; the interior wall, spanning east-west, incorporates 2x4 wood framing, and effectively bisects the interior space. The pitched roof, also largely intact, is constructed of milled lumber. Wood-frame door openings are located in the south and east walls, and window openings, in all walls; doors and window panes are, however, absent. A few pieces of stove pipe and one bed spring are located within the feature. At the exterior, remnants of two wood-frame additions are collapsed and slumped against the intact building at an angle of about 45°--each consisting of milled lumber elements occupying an area about 20 feet square and extending to a height of two to three feet. Remnants of framed walls and roof assemblies are evident within the collapsed remains.

Foundation 1, of poured concrete, measures approximately 65 feet north-south by 50 feet east-west and extends to a depth of six to eight feet. While no remnants of a super-structure are in evidence, it can be presumed that such consisted of a wood-frame building—perhaps a barn (in light of the proportions of the feature).

Foundation 2, also of poured concrete, measures approximately 30 feet north-south by 30 feet east-west and extends to a depth of six to 10 feet. While no remnants of a super-structure are in evidence, it can be presumed that such consisted of a wood-frame building—such as, perhaps, a root cellar or storm shelter.

The Cistern/Windmill complex features a cylindrical cistern of poured concrete, about 10 feet in diameter and 15 feet tall. Remnants of a wooden derrick windmill are located adjacent to the structure. An excavated pit, measuring about 100 feet east-west by 50 feet north-south and extending to a depth of about 10 feet, is located approximately 120 feet northwest of the complex, and is probably associated—perhaps functioning as a water source for livestock.

Three concentrations of wood scraps are dispersed across the east half of the site: each ranges from 15 to 20 feet in diameter, from one to two feet tall, and comprises scraps of milled lumber, of varying dimensions. The features may represent collapsed out buildings or simply discarded remnants of dismantled structures.

Additional debris, dispersed across the site in varying densities, includes: fragments of a sheet metal, three-burner gas stove. with "Mascot" embossed on the top; numerous automobile parts;

one galvanized wash tub; nondescript scraps of milled lumber and wire; and a few clear glass bottles and sanitary cans.

Records research for the present locale identified the site as the original "Burhan Homestead"—which family acquired a sizable amount of land within the region, beginning in the Depression Era, finally amassing a total of about 3,000 acres. Based on the historic record and artifact cross-dating, the homestead was established in the mid-1920's and occupied into the 1960's.

8. Prehistoric/Historic Site Matrix (attach (8A) "Artifacts Associated with Prehistoric Component", (8B) "Features Associated with Prehistoric Component", (8C) "Artifacts Associated with Historic Component", (8D) "Features Associated with Historic Component" as appropriate). Check boxes for "yes" as appropriate.

OCCURRENCE **CONTENTS**

HISTORIC COMPONENT	Surface	Subsurface	Artifacts	Features	Buildings/ Structures
Unknown Historic					
Early Historic					
Pre-territorial					
Territorial					
Expansion	X		X	X	
Depression	X		X	X	
WWII Era	X		X	X	
Post WWII	X		X	X	
Modern	X		X	X	
TOTAL COMPONENTS	1				

Periods of Significance – Protohistoric (1720-1800) Early Historic (1800-42) Pre-territorial (1842-1868) Territorial (1868-1890); Expansion (1890-1928) Depression (1929-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1950); Modern (1951-present)

8C. ARTIFACTS ASSOCIATED WITH HISTORIC COMPONENT

This form applies to: X whole surface assemblage _a particular component on the surface _subsurface _both

Component age and identifier: Expansion Period to the Modern Period-determined by artifact cross-dating

Brief Component "Type": Homestead

*Periods – Protohistoric (1720-1800) Early Historic (1801-1842) Pre-territorial (1843-1867) Territorial (1868-1889); Expansion (1890-1919); Depression (1920-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1955); Modern (1956-present); use exact dates if known

Presence/Absence of common time diagnostics
_purple glass (UV altered) X auto machine bottles _hole-in-top-cans _aqua glass _hand applied finish bottles X sanitary cans X clear glass _markers' marks _cut nails _solder dot cans _wire nails _other:

Presence/Absence of common artifact classes
_plate glass _tobacco tins X corrugated metal _wagon part X bottle glass _bottle caps X stove parts X car parts _ceramics X wire X wood _bone _metal _furniture hardware _furniture _other: X nails _silverware/cutlery _leather X tin cans _lamp parts X sawn lumber

ESTIMATED TOTAL ASSEMBLAGE SIZE: _1-10 _10-100 X 101-1,000 _1,001-10,000 _>10,000

X check here if artifacts are described in site narrative section, otherwise use space below for general notes on historic artifacts

8D. FEATURES ASSOCIATED WITH HISTORIC COMPONENT

Component age and identifier: Expansion Period to the Modern Period-determined by artifact cross-dating

Brief Component "Type": Homestead

* Periods – Protohistoric (1720-1800) Early Historic (1801-1842) Pre-territorial (1843-1867) Territorial (1868-1889); Expansion (1890-1919); Depression (1920-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1955); Modern (1956-present); use exact dates if known

Instructions: Plot features, labeled by number, on site sketch map. Attach photographs, images, drawings, notes, other recording materials as appropriate, labeling each with feature number.

Human Remains:
_Human remains (describe – include presence/absence of marker)
_Suspected grave
_Artifacts associated with human remains

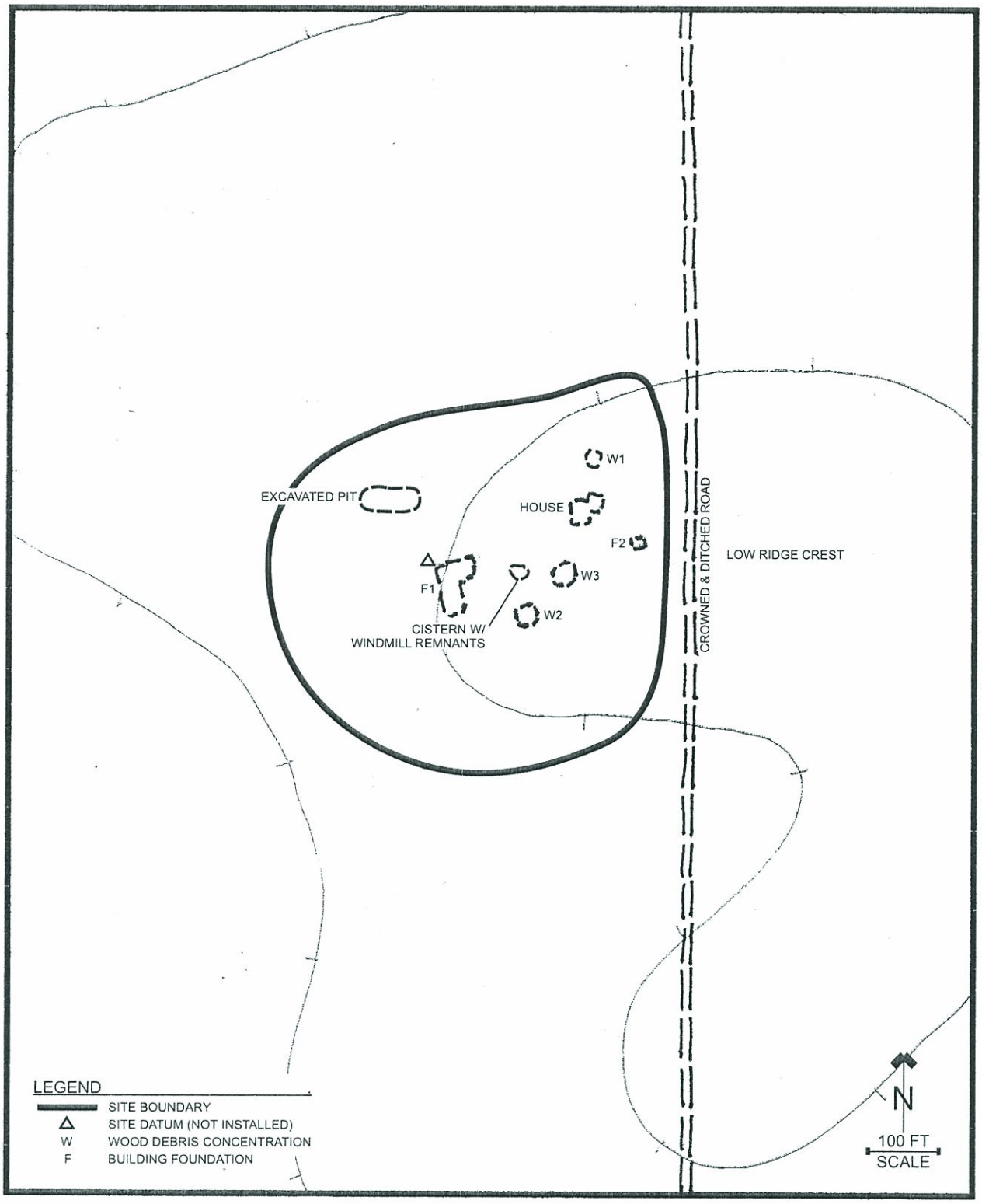
FEATURE KEYWORDS:

FEATURE INVENTORY (feature # should key to site sketch map):

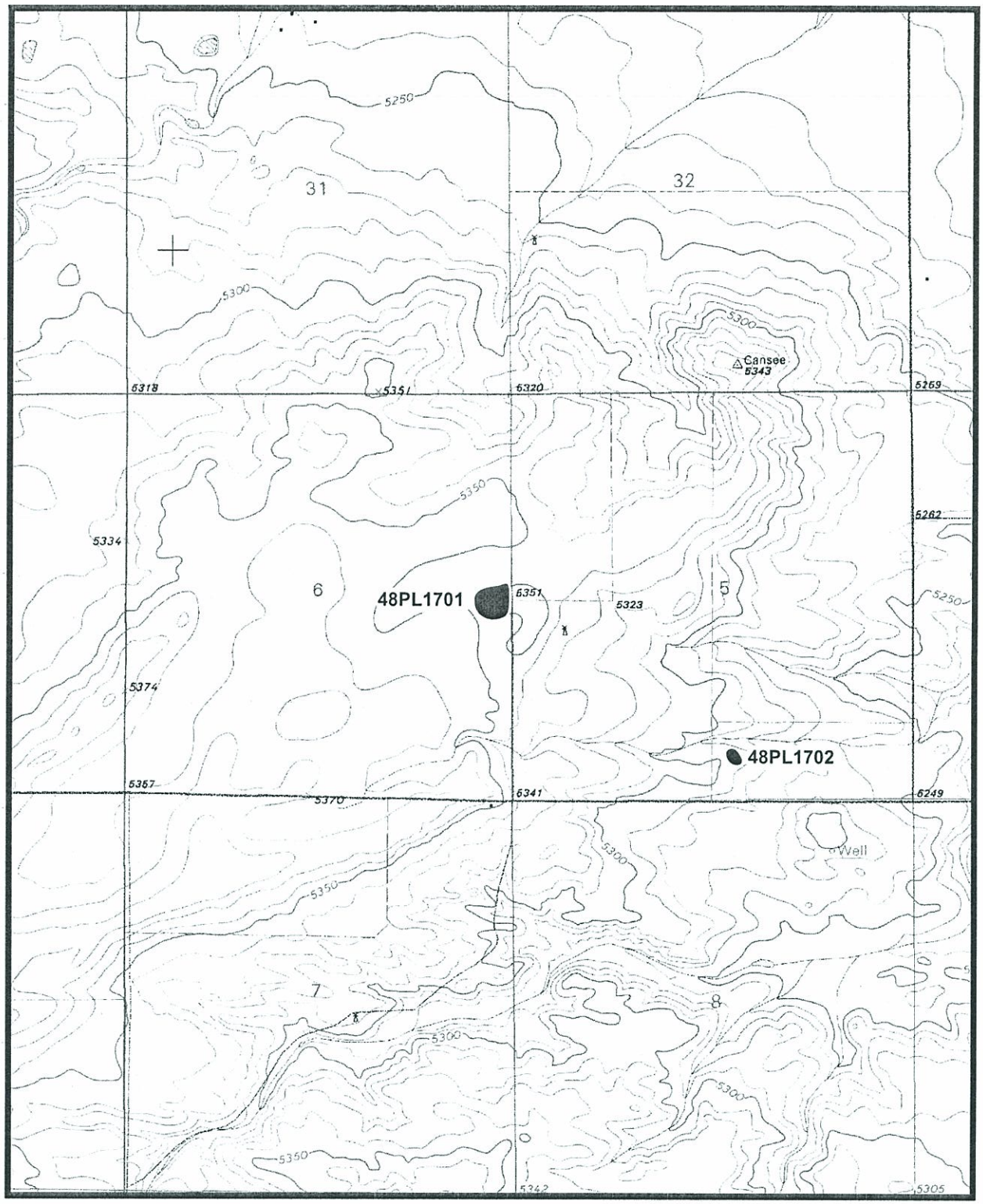
Feature #	Feature Description	Check if more info attached
House	Standing House	X
F-1	Concrete Foundation	X
F-2	Concrete Foundation	X
C/W/W	Cistern/Windmill/Well	X
Excavation	Earthen Stock Tank	X
WP-1	Woodpile	X
WP-2	Woodpile	X
WP-3	Woodpile	X

X check here if features are described in site narrative; otherwise, describe in table above.

Comments and Continuation (note any relevant historic documentation)



48PL1701—SITE MAP



48PL1701—Portion of project map showing the site location in Township 21 North, Range 65 West, Section 6.

Map Reference: Klutz Canyon, Wyoming USGS Topographic Map, 1990.

48PL1701 General site overview, looking south. Photo by Jon Frizell 06/23/2009

48PL1701 View of house, looking south. Photo by Jon Frizell 06/23/2009

48PL1701 View of house (and collapsed addition), looking east.
Photo by Jon Frizell 06/23/2009

48PL1701 View of house, looking north. Photo by Jon Frizell 06/23/2009

48PL1701 View of windmill and cistern, looking southwest.
Photo by Jon Frizell 06/23/2009

48PL1701 View of Woodpile 1, looking east. Photo by Jon Frizell 06/23/2009

48PL1701 View of Woodpile 2, looking southeast. Photo by Jon Frizell 06/23/2009

RECORD TYPE: X First-recording _Full Re-record _Update _Condition Report _Site Lead

PROPERTY CATEGORY: _Prehistoric Site X Historic Site _Building _Structure _Object _District _Landscape _Lithic Landscape _TCP

1. IDENTIFICATION/OWNERSHIP

Consultant Project Number: 2009-14
Agency Project Number(s): WYCRO #60146
Associated Project Name: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming
Site Name: N/A Temporary Field Number **2009-14-2**
Other Common names: N/A Agency Site Number
Other Site Number:
Landowner (at time of this reporting) Private

2. LOCATION

Town (if in city limits): N/A County: Platte
USGS Map: 7.5' Klutz Canyon, Wyoming (1990)
Township 21 North, Range 65 West, Section 5—NE NW SW SW SE (Template at SE.)
Elevation (ft.): 5,280
UTM: Zone 13 526436mE 4629266mN (no physical datum installed)
Datum used to calculate: NAD83
UTM source: GPS field reading
GPS Model/Software: Lowrance I-Finder
Notes pertaining to access:

3. NATIONAL REGISTER STATUS (check all that apply in each category):

ENROLLED STATUS: _Landmark/Monument _Enrolled on NRHP

FACTORS AFFECTING INTEGRITY
_Disturbance/Vandalism X erosion _vandalism _collection _structural damage _excavation, manual _excavation, mechanical _vehicle traffic X structural decay X grazing _construction/development _defacement _imminent destruction _unknown

Percent of property badly disturbed as of this recording date (to nearest 10%): 0%

NATIONAL REGISTER OF HISTORIC PLACES SIGNIFICANCE
Period(s) of significance: N/A Theme(s): N/A
NRHP Significance: _Eligible X Not eligible _Unknown (needs data)
How determined: Initial Evaluation
Level of Significance: N/A How determined: N/A
Theme(s): N/A How determined: N/A

NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILTY RECOMMENDATIONS

Recorder NRHP Evaluation: _Eligible under criteria _a _b _c _d X Not Eligible _Unevaluated
Contributing Components: _Prehistoric _Historic
Justification: The site is considered to be not eligible primarily because it fails to meet "criteria d"—owing to the low research potential deriving from the commonplace nature and generally decrepit condition of the site features and artifacts. In addition, the site is not associated with an important historic event or pattern of events (except in the broadest sense of settling the area under the Homestead Act of 1862), as required under "criteria a"; nor is the site associated with an important person, as stipulated by "criteria b"; and, finally, the site clearly fails to meet "criteria c", association with architecture that embodies distinctive characteristics.

Agency Determination: _Eligible under criteria _a _b _c _d _Not Eligible _Unevaluated
Date/initials:_____ Justification:
SHPO Concurrence: _Eligible under criteria _a _b _c _ d _Not Eligible _Unevaluated
Date/initials:_____ Justification:

4. INVESTIGATIVE HISTORY

Recorded by: Jon P. Frizell
Organization: North Platte Archaeological Services
Field Dates: 06/23/2009

DISCOVERY METHOD

X Exposed on surface _Exposed subsurface _Construction discovery _Documentary sources _Informant

WORK PERFORMED

X Surface recorded _Shovel tested _Formal test unit(s) _Block excavation _Tested with probe device _Controlled _Trench/Blade _Geomorphology study _Paleo-environmental study _Materials sourcing _Remote sensing X Photos/Sketches/Video _Collections Research _Lab analyses _Material sample program _C-14 dating _Other(describe)

MATERIALS COLLECTED AS PART OF THIS RECORDING? _yes X no _unknown
Repository: N/A

5. PROPERTY DESCRIPTION

Length 73 m Width 50 m Area 3,650 sq. m (_estimated X measurement method: paced)
Boundary estimates based on: Feature and artifact distribution
Property datum? _no X yes (describe) A 12 inch bridge spike with an aluminum tag labeled with the temporary site number

RECORDS INVENTORY

Required Attachments

X (6) Prehistoric/Historic Archaeological Site Setting, Topography, Depositional Environment
X (7) Site Narrative Description
X (8) Prehistoric/Historic Site Matrix
X site map w/scale, orientation, key
X location map (USGS 1:24,000 base)
X photographs/images

Additional Attachments
_(8A) artifacts associated with prehistoric component _(8B) features associated with prehistoric component X (8C) artifacts associated with historic component X (8D) features associated with historic component _(8E) historic and/or prehistoric rock art/inscription component _(8F) historic architecture description _(8G) linear feature description _(8H) lithic landscape sample description _(8I) historic structure/object description

6. SITE SETTING, TOPOGRAPHY, DEPOSITIONAL ENVIRONMENT

GENERAL TOPOGRAPHIC SETTING: Mountain/Major Uplift
Geographic Division: Hartville Uplift

UNIQUE SITE SETTING (check as appropriate, describe site setting in general narrative):
_playa _arroyo/cutbank _rock shelter _spring _saddle/pass _cliff _cave

GENERAL TOPOGRAPHIC SETTING: Site is located on a low rise in the eastern reaches of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming.

VEGETATION ASSOCIATION: Sagebrush Steppe

OVERALL PERCENT BARE GROUND (discuss variation in ground visibility in general site description narrative):
_0% _1-25% _26-50% X 51-75% _76-99% _100% _unknown _not applicable

GENERAL DEPOSTIONAL ENVIRONMENT (check all applicable):
_unknown _aeolian _alluvial X colluvial _bare rock _regolith _not applicable _other (describe):

AEOLIAN SETTINGS
Is site in/partly in an aeolian deposit? _yes X no _unknown _not applicable
If "yes", which type? _dune _sand shadow _sand sheet _deflation area _don't know

SUBSURFACE POTENTIAL
Archaeological subsurface deposits: _yes _no X unknown

Maximum depth of deposits:
_meters _unknown _not applicable

Estimate based on: _rough guess _shovel test(s) _core/auger tests _excavation(s) _road/arroyo cuts _animal burrows _other information:

7. NARRATIVE DESCRIPTION: A historic ranching loci, evidenced by one concrete foundation, one water well, one debris concentration, and a dispersed scatter of additional commonplace debris. Site is located on a low rise in the eastern reaches of Chugwater Flats, an expansive upland area east of Chugwater, Wyoming. A shallow wash integral to the headwaters of Box Elder Creek trends west-east, about 200 feet north. A modern crowned and ditched road traverses an east-west axis (along the section line), about 500 feet south of the site, while a modern fence line proceeds the same direction, immediately within the north perimeter of the site. Gently-rolling terrain encompasses the site.

Elevation is 5,280 feet; slope is 1°, and the predominant aspect is 90°. Surface soil is light-brown clayey silt. The nearest potential water source is a shallow wash integral to the headwaters of Box Elder Creek, about 500 feet north; a small playa is located about one-quarter mile to the southeast. Vegetation consists of grasses in generally high-density distributions—and a stand of three elm trees, in-situ.

The Foundation feature measures about 33 feet square, and is subdivided into four quadrants. The two eastern segments and a portion of the north and west segments are of formed, poured concrete, while the remainder is composed of mortared sandstone clasts. At the east half, the poured walls extend to a depth of at least five feet (presumably to accommodate a subsurface space); at the west, to a considerably lesser depth, of one to two feet. The subsurface area in the east half of the feature contains an assortment of mundane debris, including numerous barrels, wood scraps, lengths of wire, milled lumber scraps of varying dimensions, and a considerable amount of miscellaneous residential debris—consisting primarily of uncolored glass bottles and sanitary cans, with several discarded electrical appliances and a stack of at least 10 Wyoming truck license tags, dating from 1950 to 1960, also in evidence.

The Water Well is evidenced by a closed concrete cylinder, about six feet in diameter, with a rough finish, and which extends about 24 inches above the modern ground surface. An iron pipe, four inches in diameter, extends from the top of the cylinder by a distance of about one-half inch, and is encompassed by four evenly-spaced bolts, embedded about one inch distant, that also extend about one-half inch above the concrete surface. The perimeter of the concrete cylinder is wholly encased within a metal sleeve. No debris is evident in association.

A debris pit about 70 feet north of the foundation feature contains numerous barrels and 5-gallon buckets; one discarded dishwasher; multiple rolls of various types of wire; one metal livestock tank; numerous wooden fence scraps; various scraps of milled lumber and wire; and some miscellaneous residential debris, consisting primarily of uncolored glass bottles and sanitary cans.

Additional debris, dispersed across the site, includes nails of varying sizes and types, and a few bricks.

Records research for the present locale identified the site as a satellite of the original "Burhan Homestead", site 48PL1701, located about 3/4 mile to the northwest. The Burhan family acquired a sizable amount of land within the region beginning in the Depression Era, finally amassing a total of about 3,000 acres. Based on the historic record and artifact cross-dating, the original homestead was established in the mid-1920's and occupied into the 1960's. Judging by the in-situ debris, the present site was probably occupied from the mid-1920's to the 1950's—presumably by an extended member or employee of the Burhan family—and was evidently employed as a debris disposal site subsequent to abandonment.

8. Prehistoric/Historic Site Matrix (attach (8A) "Artifacts Associated with Prehistoric Component", (8B) "Features Associated with Prehistoric Component", (8C) "Artifacts Associated with Historic Component", (8D) "Features Associated with Historic Component" as appropriate). Check boxes for "yes" as appropriate.

OCCURRENCE **CONTENTS**

HISTORIC COMPONENT	Surface	Subsurface	Artifacts	Features	Buildings/ Structures
Unknown Historic					
Early Historic					
Pre-territorial					
Territorial					
Expansion	X		X	X	
Depression	X		X	X	
WWII Era	X		X	X	
Post WWII	X		X	X	
Modern	X		X	X	
TOTAL COMPONENTS	2				

Periods of Significance – Protohistoric (1720-1800) Early Historic (1800-42) Pre-territorial (1842-1868) Territorial (1868-1890); Expansion (1890-1928) Depression (1929-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1950); Modern (1951-present)

8C. ARTIFACTS ASSOCIATED WITH HISTORIC COMPONENT

This form applies to: X whole surface assemblage _a particular component on the surface _subsurface _both

Component age and identifier: Expansion Period to the Modern Period-determined by artifact cross-dating

Brief Component "Type": Habitation

*Periods – Protohistoric (1720-1800) Early Historic (1801-1842) Pre-territorial (1843-1867) Territorial (1868-1889); Expansion (1890-1919); Depression (1920-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1955); Modern (1956-present); use exact dates if known

Presence/Absence of common time diagnostics
_purple glass (UV altered) X auto machine bottles _hole-in-top-cans _aqua glass _hand applied finish bottles X sanitary cans X clear glass _markers' marks _cut nails _solder dot cans _wire nails _other:

Presence/Absence of common artifact classes
_plate glass _tobacco tins _corrugated metal _wagon part X bottle glass _bottle caps _stove parts _car parts _ceramics X wire X wood _bone X metal _furniture hardware X furniture _other: X nails _silverware/cutlery _leather X tin cans _lamp parts X sawn lumber

ESTIMATED TOTAL ASSEMBLAGE SIZE: _1-10 _10-100 X 101-1,000 _1,001-10,000 _>10,000

X check here if artifacts are described in site narrative section, otherwise use space below for general notes on historic artifacts

8D. FEATURES ASSOCIATED WITH HISTORIC COMPONENT

Component age and identifier: Expansion Period to the Modern Period-determined by artifact cross-dating

Brief Component "Type": Habitation

* Periods – Protohistoric (1720-1800) Early Historic (1801-1842) Pre-territorial (1843-1867) Territorial (1868-1889); Expansion (1890-1919); Depression (1920-1939) ; WWII-era (1940 to 1946); Post-WWII (1947 to 1955); Modern (1956-present); use exact dates if known

Instructions: Plot features, labeled by number, on site sketch map. Attach photographs, images, drawings, notes, other recording materials as appropriate, labeling each with feature number.

Human Remains:
_Human remains (describe – include presence/absence of marker)
_Suspected grave
_Artifacts associated with human remains

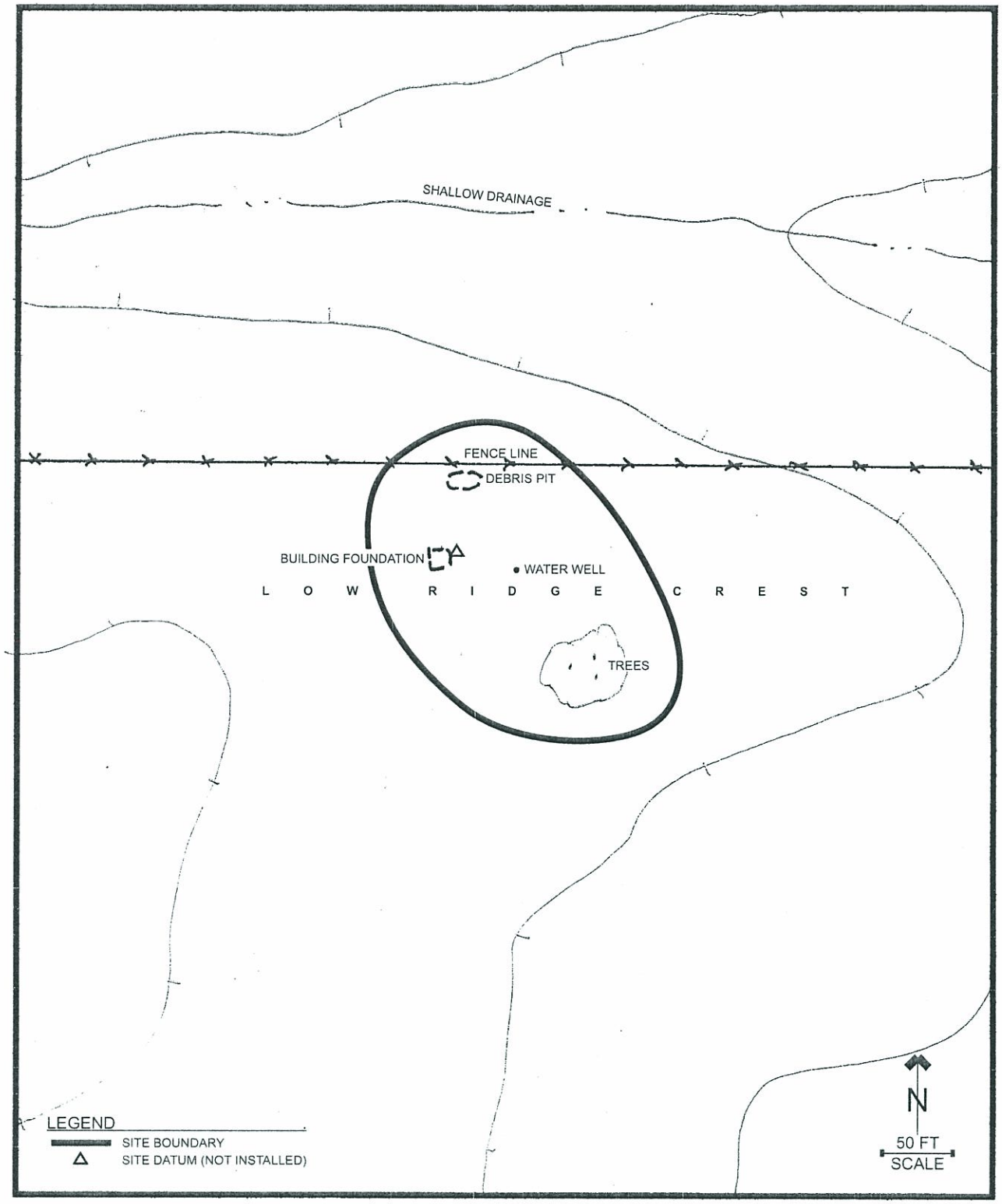
FEATURE KEYWORDS:

FEATURE INVENTORY (feature # should key to site sketch map):

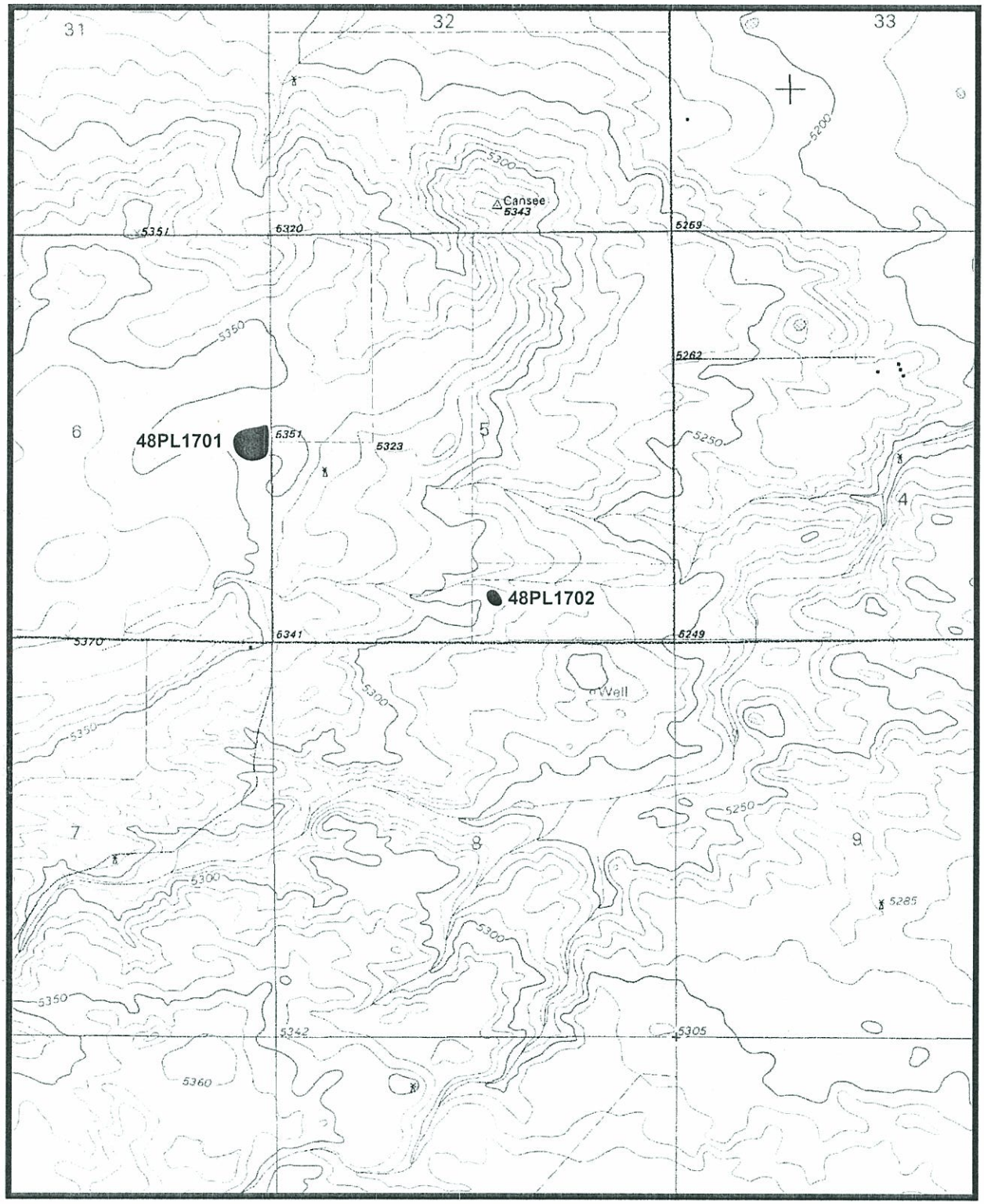
Feature #	Feature Description	Check if more info attached
F	House Foundation	X
W	Well	X
TFP	Trash Filled Pit	X

X check here if features are described in site narrative; otherwise, describe in table above.

Comments and Continuation (note any relevant historic documentation)



48PL1702—SITE MAP



48PL1702—Portion of project map showing the site location in Township 21 North, Range 65 West, Section 5.

Map Reference: Klutz Canyon, Wyoming USGS Topographic Map, 1990.

48PL1702 General site overview, newly recorded site 48PL1701 (The Burhan Homestead) at trees in photo background, looking west. Photo by Jon Frizell 06/23/2009

48PL1702 Distant site overview (Site at trees on crest in photo background, looking west-northwest. Photo by Jon Frizell 06/23/2009

48PL1702 View of concrete house foundation, looking east.
Photo by Jon Frizell 06/23/2009

48PL1702 View of trash filled pit, looking northwest. Photo by Jon Frizell 06/23/2009

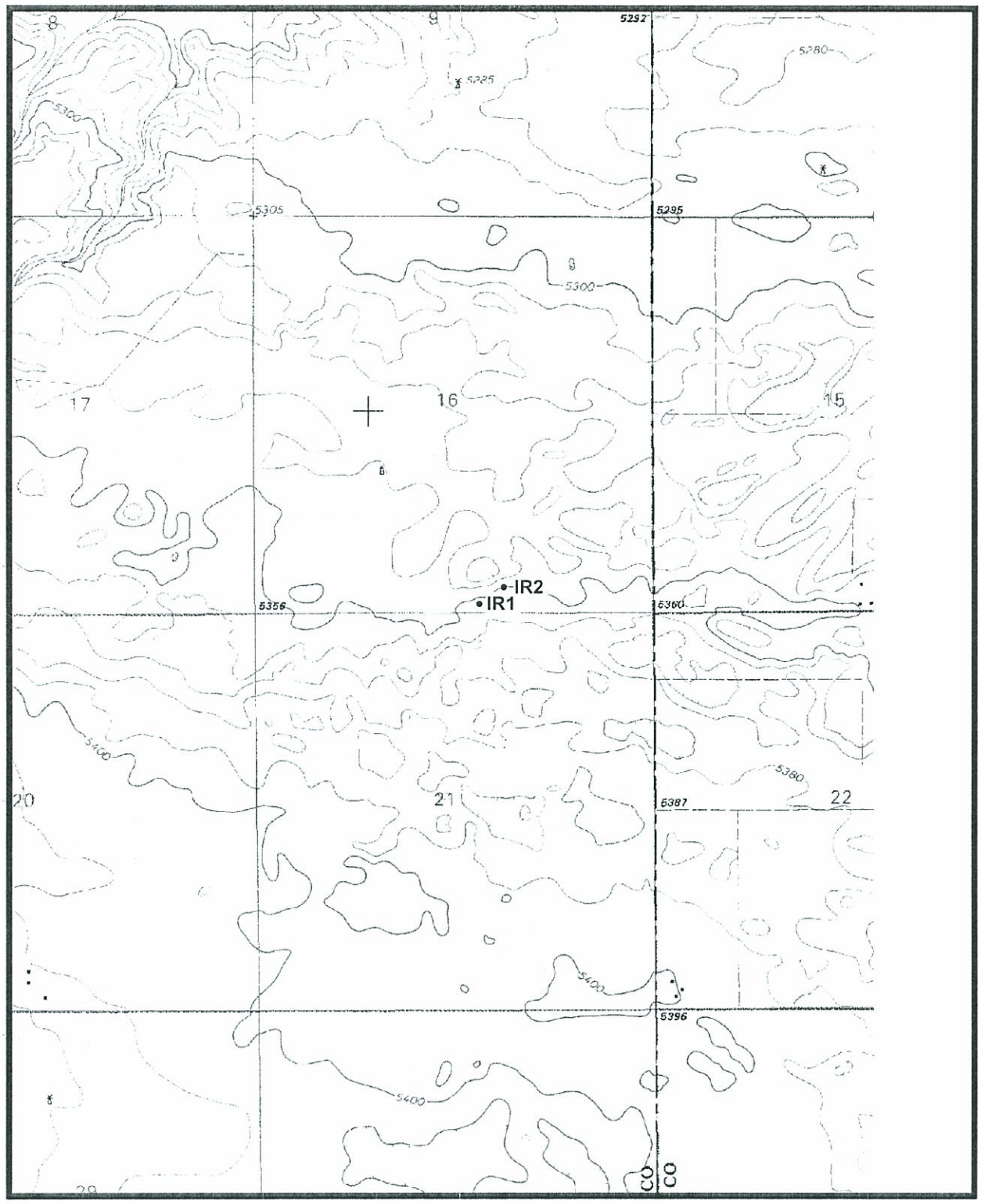
48PL1702 View of trash filled northeastern room of house foundation, looking south.
Photo by Jon Frizell 06/23/2009

48PL1702 View of capped well, looking north. Photo by Jon Frizell 06/23/2009

WYOMING ISOLATED RESOURCE FORM

Consultant Project No. 2009-14	Agency No.
Review/Compliance No.	WYCRO No. 60146

1) Resource Type: Historic debris
2) Field No. IR1
3) Project Name: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming
4) Name of Recorder: Jon P. Frizell
   Date: 06/23/09
   Company/Institution: North Platte Archaeological Services (NPAS)
5) Landowner (at time of this reporting): State of Wyoming
6) Collected: ()Yes (x)No / Repository: n/a
7) Catalog No(s).: n/a
8) **Location**
   County: Platte
   USGS 7.5' Map: Klutz Canyon, Wyoming (1990)
   Township 21 North, Range 65 West, Section 16—SE SW SW SW SE (Template at SE.)
   Elevation (ft): 5,350
   UTM: Zone 13 528102mE 4625909mN
   Datum used to calculate: NAD 83 / UTM source: GPS Meter (Garmin)
9) **Environmental Description**: Located on a minor rise along the north face of a broad, low, east-west oriented ridge system, overlooking a small playa to the immediate north. An improved road (overgrown with vegetation) traverses an east-west axis (along the section line) about 200 feet south of the resource. Surface soil is compacted, light-brown clayey sand with a low-density armoring of sandstone fragments; intact sandstone bedrock is intermittently exposed across the vicinity. Vegetation consists of sagebrush, prickly pear, forbs, and various native and introduced grasses—all in generally medium-density distributions. Elevation is 5,350 feet; slope is 2°, and the aspect is 350°. The nearest potential water source is a playa lake, about 500 feet north.
10) **Resource Description**: Four shards of aqua bottle glass, each less than one inch across, located within an area approximately three meters in diameter area. Discard probably occurred during the late Expansion Era or Depression Era.
11) **Optional attachments**
    Drawing or photo of representative diagnostic artifact—()attached (x)n/a
    Sketch map—()attached (x)n/a
    Environment photo—(x)attached ()n/a
12) **Required attachments**
    USGS 7.5' Map showing resource location—(x)attached
    Photograph(s) or illustration(s) of artifacts—(x)attached



IR1—Portion of project map showing the isolate location in Township 21 North, Range 65 West, Section 16.

Map Reference: Klutz Canyon, Wyoming USGS Topographic Map, 1990.

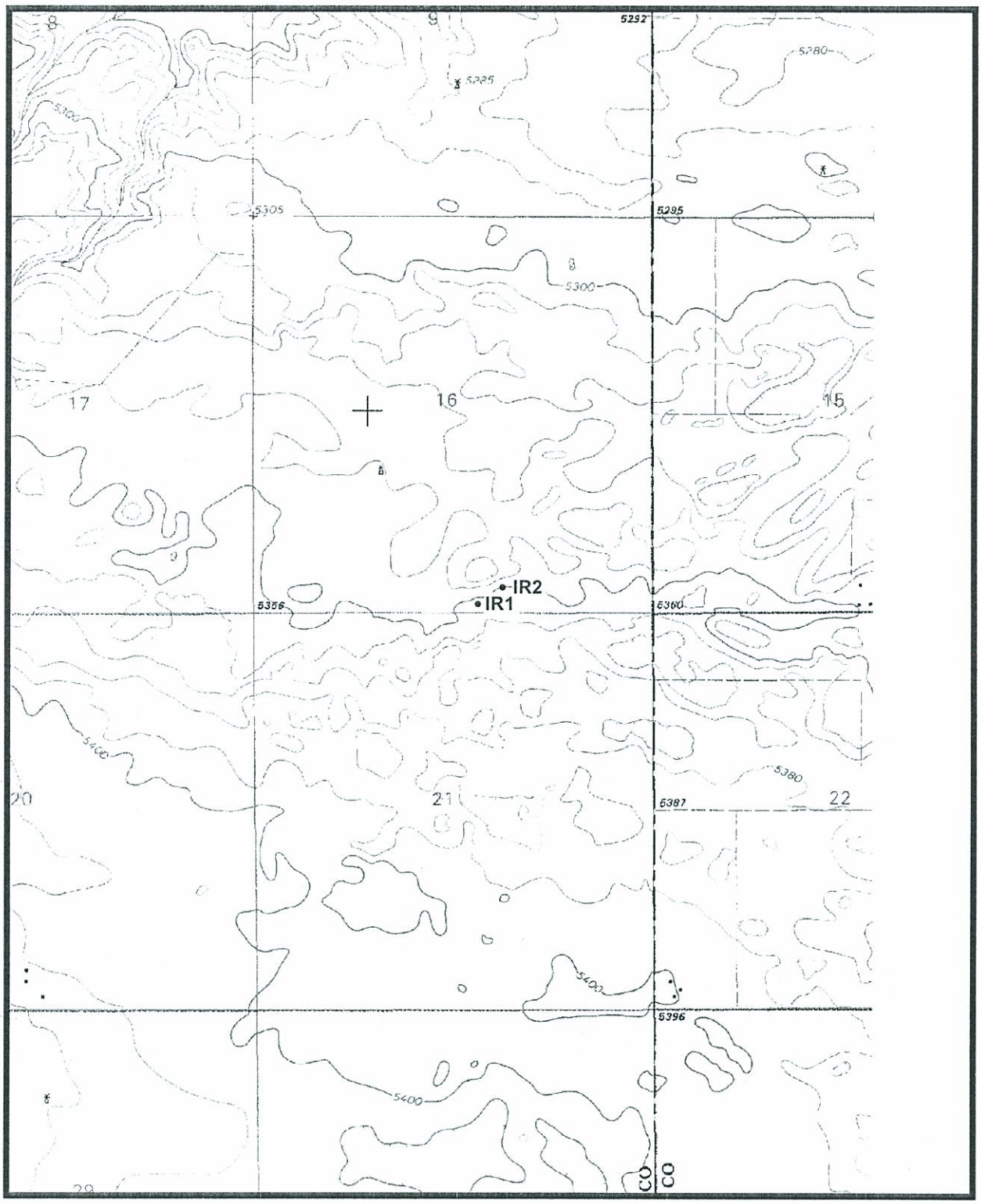
Isolated Resoruce 1 View of resource locale, looking east-northeast.
Photo by Jon Frizell 06/23/2009

Isolated Resoruce 1 View of aqua bottle glass. Photo by Jon Frizell 06/23/2009

WYOMING ISOLATED RESOURCE FORM

Consultant Project No. 2009-14	Agency No.
Review/Compliance No.	WYCRO No. 60146

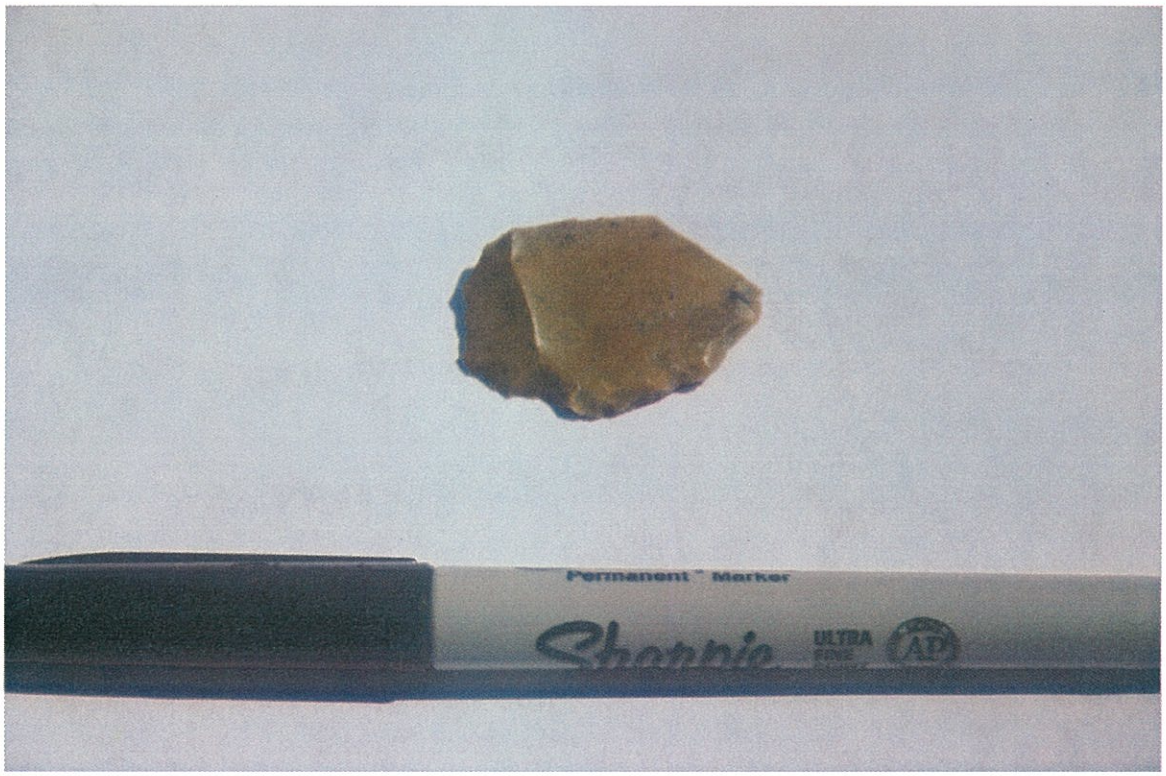
1) Resource Type: Retouched flake
2) Field No. IR2
3) Project Name: A Class II Cultural Resource Inventory of the Novelution Wind LLC Chugwater Flats Wind Energy Project (Phase 1), in Platte County, Wyoming
4) Name of Recorder: Jon P. Frizell
   Date: 06/23/09
   Company/Institution: North Platte Archaeological Services (NPAS)
5) Landowner (at time of this reporting): State of Wyoming
6) Collected: ()Yes (x)No / Repository: n/a
7) Catalog No(s).: n/a
8) **Location**
   County: Platte
   USGS 7.5' Map: Klutz Canyon, Wyoming (1990)
   Township 21 North, Range 65 West, Section 16—SE NE SW SW SE (Template at SE.)
   Elevation (ft): 5,350
   UTM: Zone 13 528214mE 4625981mN
   Datum used to calculate: NAD 83 / UTM source: GPS Meter (Garmin)
9) **Environmental Description**: Located on a minor rise along the north face of a broad, low, east-west oriented ridge system, overlooking a small playa to the immediate north. An improved road (overgrown with vegetation) traverses an east-west axis (along the section line) about 200 feet south of the resource. Surface soil is compacted, light-brown clayey sand with a low-density armoring of sandstone fragments; intact sandstone bedrock is intermittently exposed across the vicinity. Vegetation consists of sagebrush, prickly pear, forbs, and various native and introduced grasses—all in generally medium-density distributions. Elevation is 5,350 feet; slope is 2°, and the aspect is 350°. The nearest potential water source is a playa lake, about 300 feet to the northwest.
10) **Resource Description**: An expedient tool, fashioned from a complete tertiary core flake of butterscotch chert, and measuring 35 x 25 x 8 millimeters; the artifact evidences unifacial retouch along one lateral edge margin. No buried cultural materials or features are thought to exist within the vicinity of the resource, since: (1) No surface evidence (such as stains or cultural substratum at local cut banks) is apparent; and (2) the geomorphic setting, characterized by generally shallow depositions, suggests a negligible potential for such.
11) **Optional attachments**
    Drawing or photo of representative diagnostic artifact—()attached (x)n/a
    Sketch map—()attached (x)n/a
    Environment photo—(x)attached ()n/a
12) **Required attachments**
    USGS 7.5' Map showing resource location—(x)attached
    Photograph(s) or illustration(s) of artifacts—(x)attached



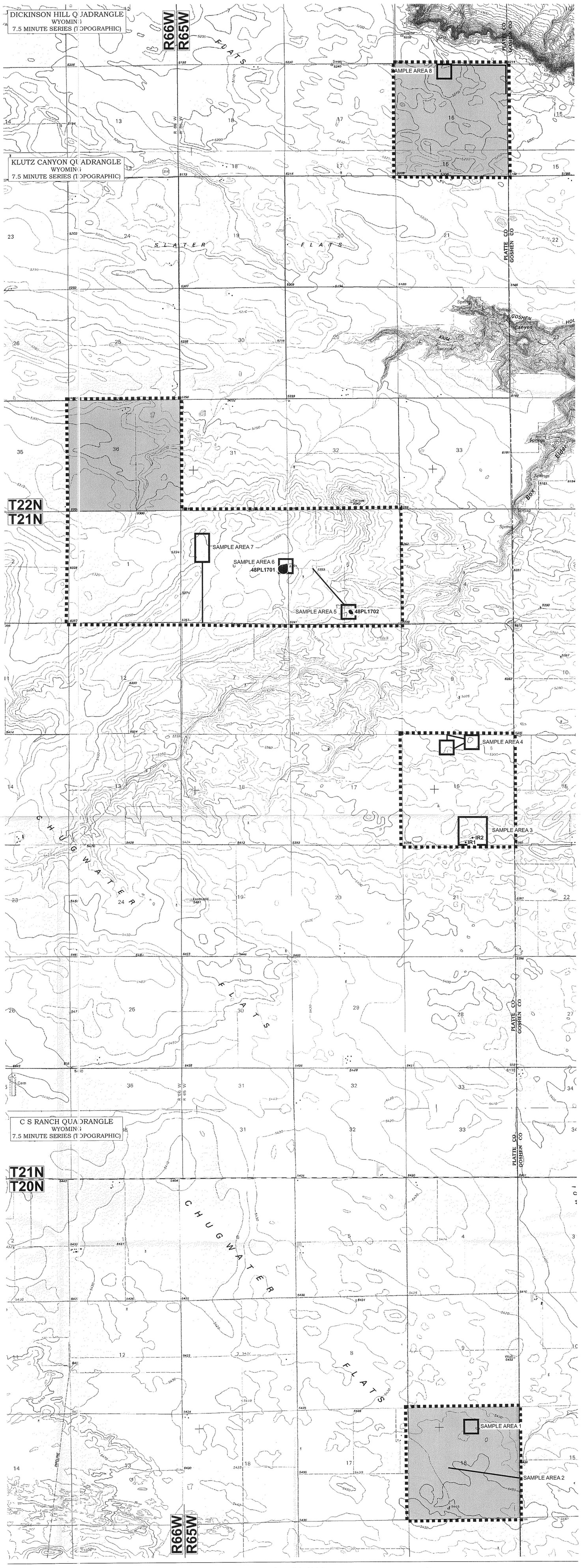
IR2—Portion of project map showing the isolate location in Township 21 North, Range 65 West, Section 16.

Map Reference: Klutz Canyon, Wyoming USGS Topographic Map, 1990.

Isolated Resoruce 1 View of resource locale, looking west.
Photo by Jon Frizell 06/23/2009



Isolated Resoruce 1 View of retouched flake. Photo by Jon Frizell 06/23/2009



LEGEND
- ARCH SITE
- IR ISOLATED RESOURCE
- PROJECT BOUNDARY (EXTENT OF VEHICULAR SURVEY)
- CLASS III BLOCK INVENTORY
- CLASS III LINEAR INVENTORY
- STATE LAND

NOTE: UNLESS OTHERWISE INDICATED, ALL LAND WITHIN THE PROJECT IS PRIVATE SURFACE.

PROJECT MAP
A CLASS II CULTURAL RESOURCE INVENTORY
OF THE
NOVELUTION WIND LLC
CHUGWATER FLATS WIND ENERGY PROJECT (PHASE 1)
IN PLATTE COUNTY, WY
SCALE: 1:24000

N

DICKINSON HILL, WY
1990
KLUTZ CANYON, WY
1990
C S RANCH, WY
1990

LIMITED THREATENED AND ENDANGERED SPECIES ASSESSMENT

PROPOSED PLATTE COUNTY WIND PROJECT
Approximately 3,840 Acres
Near Chugwater, Platte County, Wyoming

Project No. 24097709
August 31, 2009

Prepared for:

Novelution Wind LLC
Ortonville, Michigan

Prepared by:

Terracon
Wichita, Kansas

Terracon

Terracon

August 31, 2009

Ms. Deirdre Laviolette
VP Resource Planning
Novelution Wind LLC
1001 Oakwood Rd
Ortonville, Michigan 48462

Telephone: 857.928.5940
Email: delaviolette@gmail.com

RE: Proposed Platte County Wind Project
Approximately 2,720 Acres
Near Chugwater, Platte County, Wyoming
Project No. 24097709

Dear Ms. Laviolette:

Terracon Consultants, Inc. (Terracon) has completed a Limited Threatened and Endangered Species Assessment (TESA) for the above-referenced site and the results are presented in the attached report. The TESA was performed in accordance with our Proposal No. E0109101 dated June 11, 2009.

The client should be aware that water bodies, including apparent, isolated wetlands, were observed on the site and may be considered jurisdictional by the U.S. Corps of Engineers (USACE). Terracon understands the client intends to avoid potential jurisdictional waters during project development. However, if construction activities are to impact these water bodies and/or apparent wetlands, Terracon recommends a preliminary jurisdictional determination be conducted and forwarded to the local USACE office for jurisdictional determination. If one or more of the features are found to be jurisdictional, site development may not be impeded but the presence of jurisdictional wetlands may require permitting or mitigation if those wetlands are to be disturbed by construction activities. If desired, Terracon would be pleased to conduct a preliminary jurisdictional determination and forward the results to USACE to request a final determination. Permitting and/or mitigation for construction and/or development activities associated with these areas may be required by the USACE and other agencies.

In addition, the client should be aware that The Migratory Bird Treaty Act (MBTA) is a Federal law that protects migratory birds. Mitigation and/or permitting for migratory bird mortalities from collisions with wind turbines may be required for individual birds; however, significant adverse impacts to populations are not likely to occur at the proposed site based on the work completed for this assessment.

We appreciate the opportunity to perform these services for you. Please contact us if you have questions regarding this information or if we can provide any other services.

Sincerely,
Terracon Consultants, Inc.

Kim R. Austin
Senior Project Manager

for
James I. VanBlaricon
Senior Environmental Scientist

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LIMITED THREATENED AND ENDANGERED SPECIES ASSESSMENT

PROPOSED PLATTE COUNTY WIND PROJECT
Approximately 2,720 Acres
Near Chugwater, Platte County, Wyoming

Project No. 24097709
August 31, 2009

1.0 INTRODUCTION

Novelution Wind LLC (client) proposes to construct the Platte County Wind Project on approximately 2,720 non-contiguous, acres near Chugwater, Platte County, Wyoming (site). Terracon Consultants, Inc. (Terracon) conducted a Threatened and Endangered Species Assessment (TESA) of the site on July 9, 2009, and the results of the TESA are presented in this report. The TESA was performed in accordance with our Proposal No. E0109101 dated June 11, 2009.

The site is divided into six, mostly non-contiguous sections. For the purposes of this report, Terracon will refer to the following sections as the site:

Section 16, Township 20 North, Range 65 West (T20N-R65W-S16)
Section 16, Township 21 North, Range 65 West (T21N-R65W-S16)
Section 36, Township 22 North, Range 66 West (T22N-R66W-S36)
Section 6, Township 21 North, Range 65 West (T21N-R65W-S6)
Section 5, Township 21 North, Range 65 West (T21N-R65W-S5)
Section 16, Township 22 North, Range 65 West (T22N-R65W-S16)

The purpose of this TESA is to assist the client in initially evaluating risks and potential impacts (if any) from the proposed wind energy development of the site to threatened and/or endangered species. In addition, this initial assessment will assist the client in determining if additional investigation is needed and develop strategies to avoid, minimize, or mitigate wildlife or sensitive habitat impacts.

1.1 Wind Project Description

The proposed wind energy development on the site will consist of wind turbines and associated infrastructure (e.g. access roads, transmission lines, etc.) located on non-contiguous tracts of land in southeast Platte County, Wyoming.

Figures 1, 3, 5, 7, and 9 are Topographic Maps reproduced from portions of the Dickinson Hill, Klutz Canyon, and C S Ranch, Wyoming, United States Geological Survey (USGS) 7.5-Minute Series Quadrangle maps. Figures 2, 4, 6, 8 and 10 are Site Diagrams showing the site and adjoining properties on 2006 aerial photographs.

1.2 Scope of Services

The TESA scope of work conducted by Terracon included the following tasks:

- A review of readily available literature regarding the documented and historic flora and fauna within the area of the site, and

- A site reconnaissance was conducted by Terracon biologists.

1.3 Standard of Care and Reliance

This TESA was performed in accordance with generally accepted practices of this profession undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care but may be limited by conditions encountered during performance, the scope of services requested by the client, or inability to review information not received by the report date. This TESA report has been prepared for the exclusive use and reliance of Novelution Wind LLC for this specific application, as discussed.

2.0 PROJECT AREA

The site is comprised of fragmented short and mixed grass prairie, agricultural land, grazing land, cropland, pasture land, and small (less than < 1 acre) wet meadows and potential wetlands. Selected site photographs taken during the site reconnaissance are included in Appendix A.

Table 1 contains general information regarding the physical setting of the site.

Table 1. Physical Setting		
Physical Setting Information For Site And Surrounding Area		**Source**
Topography (Refer to Appendix A for an excerpt from the Quadrangle Map)		
Site Elevation:	Approximately 5,200 - 5,460 feet (NGVD).	Klutz Canyon, C S Ranch, and Dickinson Hill, Wyoming Quadrangles, 1990
Topographic Slope:	The topographic gradient and direction of surface runoff varies across the site. However, the overall surface runoff appeared to be gently sloping toward the south.	
Closest Surface Water:	**T20N-R65W-S16:** An intermittent pond/water well is indicated in the southern portion of the site (see Figure 9). **T21N-R65W-S16:** An intermittent pond is indicated near the northeast corner of the site (see Figure 7). **T22N-R66W-S36:** An intermittent pond is indicated near the northeast corner and an intermittent stream trending south to north-northeast is located in the east half of Section 36 (see Figure 3). **T21N-R65W-S6:** An intermittent stream is indicated trending west to east in the southeast portion of the site (see Figure 5). **T21N-R65W-S5:** The intermittent stream noted above continues across the southern portion of this section, and a second intermittent stream is located in the southeastern portion of the site (see Figure 5). **T22N-R65W-S16:** An intermittent pond is indicated near the northwest corner of the site (see Figure 1).	
FEMA Map		
According to FEMA, flood zones do not appear to be located within the site boundaries. The site appears to be classified as Zone X – areas determined to be outside the 0.2% annual chance floodplain. Maps "may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added."		

Table 1. Physical Setting		
Soil Characteristics		
Soil Type:	Soil types listed for Platte County, Wyoming, within the site include the following types listed below: Bayard-Phiferson-Treon, thin solum complex, 0 to 6 percent slopes; Cedak-Bayard-Treon, thin solum, complex, 0 to 6 percent slopes; Cedak-Recluse-Treon very fine sandy loams, 0 to 6 percent slopes; Cedak-Treon fine sandy loams, 0 to 6 percent slopes; Orpha fine sand, 0 to 15 percent slopes; Recluse-Cedak loams, 0 to 6 percent slopes; Treon, thin solum-Phiferson-Keeline fine sandy loams, 0 to 6 percent slopes; Turnercrest-Phiferson-Taluce complex, 0 to 6 percent slopes; Bayard-Phiferson-Treon, thin solum complex, 3 to 45 percent slopes; Featherlegs-Recluse loams, 3 to 6 percent slopes; Mainter fine sandy loam, 0 to 6 percent slopes; Recluse fine sandy loam, 3 to 6 percent slopes; Recluse-Albinas-Treon, thin solum, complex, 0 to 6 percent slopes; Vetal-Julesburg fine sandy loams, 0 to 6 percent slopes; Alice-Recluse-Cedak fine sandy loams, 0 to 6 percent slopes; Cedak-Recluse very fine sandy loams, 0 to 6 percent slopes; Keeline-Turnercrest fine sandy loams, 0 to 6 percent slopes; Recluse-Graystone very fine sandy loams, 0 to 6 percent slopes; Treon-Alice-Phiferson complex, 0 to 6 percent slopes; Keeline-Taluce-Turnercrest fine sandy loams, 3 to 40 percent slopes; Taluce-Treon complex, thin solums, 6 to 10 percent slopes	Natural Resource Conservation Center (NRCS) Soil Survey for Platte County Wyoming, 1994

Description:	**Bayard-Phiferson-Treon,** thin solum complex, 0 to 6 percent slopes, consist of well drained soils on hills and slopes. Permeability is moderately rapid with a moderate available water capacity. **Cedak-Bayard-Treon**, thin solum, complex, 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderate to moderately rapid with a moderate available water capacity. **Cedak-Recluse-Treon very fine sandy loams,** 0 to 6 percent slopes, consist of well drained soil on hills. Permeability is moderate to moderately rapid with a very low to high available water capacity. **Cedak-Treon fine sandy loams, 0 to 6 percent slopes,** consist of well drained soils on hills and swales. Permeability is moderate to moderately rapid with a very low to low available water capacity. **Orpha fine sand, 0 to 15 percent slopes**, consists of excessively drained soils on hills. Permeability is very rapid, and available water capacity is low. **Recluse-Cedak loams,** 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderate with a low to high available water capacity. **Treon, thin solum-Phiferson-Keeline fine sandy loams,** 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderately rapid with moderate to very low available water capacity. **Turnercrest-Phiferson-Taluce complex,** 0 to 6 percent slopes, consists of well drained soils on hills. Permeability is moderately rapid with a low to very low available water capacity.	

	Bayard-Phiferson-Treon, thin solum complex, 3 to 45 percent slopes, consist of well drained soils on hills. Permeability is moderately rapid with a very low to moderate available water capacity. **Featherlegs-Recluse loams,** 3 to 6 percent slopes, consist of well drained soils on hills and terraces. Permeability is moderate with a moderate to high available water capacity. **Mainter fine sandy loam,** 0 to 6 percent slopes, consists of well drained soils on hills. Permeability is moderately rapid, and available water capacity is moderate. **Recluse fine sandy loam,** 3 to 6 percent slopes, consist of well drained soils on benches. Permeability is moderately slow with a high available water capacity. **Recluse-Albinas-Treon, thin solum, complex,** 0 to 6 percent slopes, consists of well drained soils on drainageways, hills, and terraces. Permeability is moderate to moderately rapid with a very low to high water capacity. **Vetal-Julesburg fine sandy loams,** 0 to 6 percent slopes, consist of well drained soils on hills and terraces. Permeability is moderately rapid with a moderate available water capacity. **Alice-Recluse-Cedak fine sandy loams,** 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderate to moderately rapid with a low to high available water capacity. **Cedak-Recluse very fine sandy loams,** 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderate with a low to high available water capacity. **Keeline-Turnercrest fine sandy loams,** 0 to 6 percent slopes, consist of well drained soils on benches. Permeability is moderately rapid with low to high available water capacity.	

	Recluse-Graystone very fine sandy loams, 0 to 6 percent slopes, consist of well drained soils on hills. Permeability is moderate to moderately rapid with a high available water capacity. **Treon-Alice-Phiferson complex,** 0 to 6 percent slopes, consists of well drained soils on hills. Permeability is moderately rapid with a low to moderate available water capacity. **Keeline-Taluce-Turnercrest fine sandy loams,** 3 to 40 percent slopes, consist of well drained soils on hills. Permeability is moderately rapid with a very low to moderate available water capacity. **Taluce-Treon complex,** thin solums, 6 to 10 percent slopes, consists of well drained soils on hills. Permeability is moderately rapid with a very low available water capacity.	
Geology/Hydrogeology		
Physiographic Setting:	The site properties are situated within the "Plains Area" of Platte County, a gently rolling, elevated plain bounded to the northeast and east by the escarpment of the Goshen Hole Lowland and to the west by the valley of Chugwater Creek. Local areas near the site properties are known as the "Slater Flats," "Chugwater Flats," and "Iowa Center Flats."	Geology and Ground-Water Resources of Platte County, Wyoming: USGS Water-Supply Paper No. 1490, by D.A. Morris et al, 1960
Stratigraphy:	The site properties are underlain by the Miocene-age Arikaree Formation, which consists of an upper and lower unit. The upper part of the formation consists generally of soft to moderately hard fine-grained sand and silt with scattered pebbles and cobbles and hard sand concretions. A few beds of volcanic ash also occur in this unit, which ranges in thickness between approximately 400 and 850 feet. The lower unit of the formation consists generally of coarse-grained lenticular sandstone beds with conglomerate lenses approximately 88 to 340 feet thick.	
Primary Aquifer	Miocene Arikaree Formation.	
*Hydrogeologic Gradient:	Generally northeast, toward the Goshen Hole lowland. Depth to groundwater beneath the site properties is anticipated to be approximately 100 to 120 feet.	

Table 1. Physical Setting
National Wetlands Inventory Maps
According to the C S Ranch, Dickinson Hill, and Klutz Canyon, Wyoming National Wetlands Inventory (NWI) Maps, apparent wetland ecological systems were identified throughout the site. Waterbodies identified on the NWI maps are classified predominantly as PEMA (Palustrine Emergent Temporarily Flooded) and PEMC (Palustrine Emergent Seasonally Flooded).

*Groundwater flow direction and the depth to shallow groundwater will likely vary across the site depending on seasonal variations in rainfall and depth to the soil/bedrock interface. Without on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be ascertained.

3.0 LITERATURE REVIEW

3.1 Floral Resources

The site is located within the rolling plains and tablelands, known as the Flat to Rolling Cropland of the High Plains ecoregion. This ecoregion is formed by uplift and erosion of the Rocky Mountains. Due to the rainshadow effect on the region from the Rocky Mountains, vegetation primarily consists of mixed-grass prairie. The Flat to Rolling Cropland is an ecoregion of relatively continuous level plains composed of silty, loamy soils. In contrast to surrounding ecoregions that are largely used for cattle grazing, most of the Flat to Rolling Cropland ecoregion is cropland, with Winter Wheat as the main cash crop (Chapman et al. 2004).

Dominant species of the mixed-grass prairie include: Blue grama (*Bouteloua gracilis*), Junegrass (*Koeleria macrantha*), Sandberg bluegrass (*Poa secunda*), Needle-and-thread (*Hesperostipa comata*), Western wheatgrass (*Pascopyrum smithii*), Rabbitbrush (*Ericameria spp.*), White sagebrush (*Artemisia ludoviciana*) and various forbs, shrubs and other grasses. In addition, small tracts of shortgrass prairie with stands of Buffalo grass (*Buchloe dactyloides*) are common (Chapman et al. 2004).

A summary of federal and state listed plant species that are potentially located in Platte County, including conservation status, is included in Table 2.

Table 2. Listed Plant Species for Platte County, Wyoming		
Common Name	**Scientific Name**	**Conservation Status**
Blowout penstemon	***Penstemon haydenii***	**FE**
Colorado butterfly plant	***Gaura neomexicana coloradensis***	**FT**
Ute ladies'-tresses Orchid	***Spiranthes diluvialis***	**FT**
Western Prairie Fringed Orchid	***Platanthera praeclara***	**FT**

FE: Federally Listed Endangered, FT: Federally Listed Threatened

Critical habitat for the Colorado butterfly plant has been designated in specific wet meadows and riparian areas in Platte County, Wyoming.

The Blowout penstemon occurs in sand dunes and blowout habitats of Platte County, Wyoming. The Western prairie fringed orchid occurs in downstream riverine habitats of the Platte River system, and the Ute ladies'-tresses occurs in seasonally moist soils and wet meadows of drainages below 7,000 feet in Platte County, Wyoming.

The likelihood of occurrence for the species listed in Table 2, critical habitat potential and/or habitat requirements on the site is further discussed in Section 4.2.

The State of Wyoming does not have state listed threatened or endangered species that are afforded protection under state regulations. However, Species of Concern (SC) with a state status of Native Species Status 1 (NSS1), NSS2 or NSS3 are given special attention with respect to project review and recommended mitigation by the Wyoming Department of Game and Fish (WDGF). The list of SC vegetation with their federal and state designations for Wyoming is included in Appendix B.

In an electronic mail dated February 17, 2009, the WDGF indicated the site was "clear" for SC species. A copy of this correspondence is included in Appendix B.

In a letter dated March 6, 2009, the U.S. Fish and Wildlife Service (USFWS) indicated the Blowout penstemon, Colorado butterfly plant, and Ute ladies'-tresses orchid are concerns for Platte County and may occur on the site. A copy of this correspondence is included in Appendix B.

3.2 Faunal Resources

3.2.1 Avian Resources

A literature review of readily available published resources was conducted to assess known avian activities on or near the site. Below is a discussion of the information reviewed.

Bird distribution is related to habitat. Many avian species are selective and are habitat-specific. Some species have a broader habitat tolerance and other species are considered adaptable generalists.

A summary of federal listed bird species that are potentially located in Platte County, including conservation status, is included in Table 3.

Table 3. Avian Species Listed for Platte County, Wyoming

Common Name	Scientific Name	Conservation Status
Interior least tern	***Sternula antillarum***	**FE**
Piping plover	***Charadrius melodus***	**FT**
Whooping crane	***Grus americana***	**FE**

FE: Federally Listed Endangered, FT: Federally Listed Threatened

Critical habitat for the Whooping crane has not been designated in Platte County, Wyoming, but has been designated in Nebraska in riverine habitat of the Platte River system.

The Interior least tern, Piping plover and Whooping crane utilize downstream riverine habitats of the Platte River system in Platte County, Wyoming.

According to the Audubon Society, the site is not located within Important Bird Areas identified for Wyoming. The nearest identified Important Bird Area is the Wyoming Hereford Ranch located approximately 50 miles south of the site.

The 109th Annual Christmas Bird Count (Winter 2008-2009) for the Cheyenne Region (WYCH), approximately 45 miles south of the site, did not report large (>100) numbers of individuals except for the: Canada goose (*Branta canadensis*), Mallard (*Anas platyrhynchos*), American crow (*Corvus brachyrhynchos*), European starling (*Sturnus vulgaris*), Dark-eyed Junco (*Junco hyemalis*), and House sparrow (*Passer domesticus*).

The USGS North American Breeding Bird Survey (BBS) for the Chugwater Route, located approximately 8 miles southwest of the site, reports a total number of 52 species observed

for this Route between 1979 and 1995. Relatively large numbers of Mourning dove (*Zenaida macroura*) and Horned lark (*Eremophila alpestris*) (94 and 95, respectively), and large numbers (>100) of Lark bunting (*Calamospiza melanocorys*) and Western meadowlark (*Sturnella neglecta*) individuals were reported in 1995, the last active year of survey completed. The BBS data for the Dwyer Route, located approximately 35 miles northwest of the site, reports a total of 62 species recorded between 1992 and 2008, with large numbers (>100) of Brewer's blackbird (*Euphagus cyanocephalus*), Cliff swallow (*Hirundon pyrrhonata*), and European starling (*Sturnus vulgaris*) individuals reported in 2008.

The likelihood of occurrence for avian species and their habitat requirements on the site is further discussed in Section 4.3.1.

The State of Wyoming does not have state listed threatened or endangered species that are afforded protection under state regulations. However, SC with a state status of NSS1, NSS2 or NSS3 are given special attention with respect to project review and recommended mitigation by the WDGF. The list of avian SC with their federal and state designations for Wyoming is included in Appendix B.

In an electronic mail dated February 17, 2009, the WDGF indicated the site was "clear" for SC species.

In a letter dated March 6, 2009, the USFWS did not indicate a specific concern for particular federally listed avian species, but did mention the Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA) concerning avian species with respect to development of the site.

3.2.2 Other Wildlife Resources

A list of additional federal listed species (excluding birds) that are likely to occur in Platte County is shown in Table 4.

Table 4. Other Wildlife Species Listed for Platte County, Wyoming

Common Name	Scientific Name	Conservation Status
Black-footed ferret	***Mustela nigripes***	**FE**
Pallid sturgeon	***Scaphirhynchus albus***	**FE**

FE: Federally Listed Endangered

The Black-footed ferret requires prairie dog towns as habitat in Platte County, Wyoming. In addition, the Pallid sturgeon utilizes downstream riverine habitat of the Platte River system in Platte County, Wyoming.

The likelihood of occurrence and habitat requirements of the species listed in Table 4 are further discussed in Section 4.3.2.

Federally listed T&E bat species do not exist for Platte County, Wyoming.

The State of Wyoming does not have state listed threatened or endangered species that are afforded protection under state regulations. However, SC with a state status of NSS1, NSS2 or NSS3 are given special attention with respect to project review and recommended mitigation by the WDGF. The list of other SC wildlife (e.g. mammals, fish, amphibians, reptiles, mollusks and Crustaceans, etc.) for Wyoming is included in Appendix B.

In an electronic mail dated February 17, 2009, the WDGF indicated the site was "clear" for SC species; however Section 16, Township 20 North, Range 65 West of the site occurs within the winter range of the Pronghorn antelope (*Antilocapra americana*). In addition, the WDGF indicated baseline survey work may produce records of occurrence for prairie dogs and other species.

In a letter dated March 6, 2009, the USFWS indicated a concern for the Black-tailed prairie dog (*Cynomys ludovicianus*) and wetlands/riparian areas in general.

4.0 SITE RECONNAISSANCE

4.1 General Site Information

Table 5. General Site Information

Site Reconnaissance	
Field Personnel	Kim R. Austin, Senior Project Manager; Nicholas R. Hines, Senior Staff Environmental Scientist
Reconnaissance Dates	July 9, 2009
Weather	Clear, Sunny, Windy, 90° F
Site Contact/Title	Ms. Deirdre Laviolette, VP Resource Planning, Novelution Wind LLC

A limited site reconnaissance was conducted to observe the general flora, fauna and habitats occurring within select portions of the site.

The limited site reconnaissance included:

- an initial drive and/or walk through survey of select flora and habitat patches; and
- visual and aural observations for avian and other animal species from select locations on and near the site.

4.2 Floral Resources

The site consists primarily of cropland, grazing land, pasture land, shortgrass and mixed-grass prairie, small (< 1 acre) isolated wet meadows and potential wetlands. Much of the natural short and mixed grass vegetation located within the site has been impacted by current and historic agricultural use including cropland and pasture land. Indications of areas of over-grazing of pasture were observed during the site reconnaissance. The landscape within and surrounding the site is fragmented. Fragmentation of these habitats does not provide the quality or quantity of habitat found in large contiguous tracts of the High Plains ecoregion at other locations within Platte County. The existing shortgrass and mixed-grass prairie habitat within and surrounding the site is fragmented due to the presence of fences, roads, residential farmsteads and agricultural land use. The quality of the habitats observed on site is considered marginal and wildlife abundance, richness, production and use of the available habitats on the site is considered low compared to similar habitats in the region. Table 6 below is a general list of vegetation observed during the site reconnaissance.

Table 6. Observed Vegetation

Scientific Name	Common Name
Blue grama	*Bouteloua gracilis*
Big bluestem	*Andropogon gerardii*
Barnyard grass	*Echinochloa muricata*
Buffalo grass	*Buchloe dactyloides*
Little bluestem	*Schizachyrium scoparium*
Side-oats grama	*Bouteloua curtipendula*
Western wheatgrass	*Pascopyrum smithii*
Green needlegrass	*Nassella viridula*
Pricklypear cactus	*Opuntia macrorhiza*
Western wallflower	*Erysimum capitatum*
Indian breadroot	*Pediomelum esculentum*
Needle-and-thread	*Hesperostipa comata*
Indian ricegrass	*Achnatherum hymenoides*

Table 6. Observed Vegetation	
Scarlet globemallow	*Sphaeralcea coccinea*
Bracted spiderwort	*Tradescantia bracteata*
Dotted gayfeather	*Liatris punctata*
Prairie coneflower	*Ratibida columnifera*
Slender venus' looking-glass	*Triodanis leptocarpa*
Scarlet bee blossom	*Gaura coccinea*
Yucca	*Yucca glauca*
Alfalfa	*Medicago sativa*
Creamy poison milk-vetch	*Astragalus racemosus.*
Buffalo pea	*Astragalus crassicarpus*
Musk thistle	*Carduus nutans*
Foxtail barley	*Hordeum jubatum*
Japanese brome	*Bromus japonicus*
Wild licorice	*Glycyrrhiza lepidota*
Catnip	*Nepeta cataria*
Silky sophora	*Sophora nuttalliana*
White beardtongue	*Penstemon albidus*
Silky prairie clover	*Dalea villosa*
Curly-top gumweed	*Grindelia squarrosa*
Field pussy-toes	*Antennaria neglecta*
Slender milk-vetch	*Astragalus gracilis*
Smooth brome	*Bromus inermis*
Blazing star	*Liatris sp.*
Lemon beebalm	*Monarda citriodora*
Purple lovegrass	*Eragrostis spectabilis*
Sand lovegrass	*Eragrostis trichodes*
Little barley	*Hordeum pusillum*
Green foxtail	*Setaria viridis*
Kentucky bluegrass	*Poa pratensis*
Cheatgrass	*Bromus tectorum*
Sedge sp.	*Carex sp.*
Rush sp.	*Juncus sp.*
White sagebrush	*Artemisia ludoviciana*
Black medic	*Medicago lupulina*
Canada thistle	*Crision arvense*
Smooth wildrye	*Elymus glaucus*
Ball cactus	*Escobaria vivipara*

Table 6. Observed Vegetation	
Junegrass	*Koeleria macrantha*
Sandberg bluegrass	*Poa secunda*
Rabbitbrush	*Ericameria spp.*

The majority of the site consists of cropland, pasture for livestock grazing and previously disturbed shortgrass and mixed-grass prairie which are typically inhabited primarily by generalist species and species tolerant of disturbance.

Suitable habitats for the Blowout penstemon, such as sand dunes or blowouts were not observed on the site. Downstream riverine habitat of the Platte River system, which is considered suitable habitat for the Western prairie fringed orchid, was not observed on the site. In addition, the Western prairie fringed orchid is not known to occur in Wyoming, and the nearest riverine habitat of the Platte River system is located approximately 50 miles north of the site. The potential occurrence of the Blowout penstemon and the Western prairie fringed orchid on the site is considered unlikely.

Designated critical habitat for the Colorado butterfly plant, such as the specific wet meadows and riparian areas in Platte County do not occur on the site. The nearest designated critical habitat for this species is located along Teepee Ring Creek approximately 12 miles west of the site. However, several small wet meadows and isolated, potential wetlands were observed on the site. During the site reconnaissance, the habitat in and surrounding the wet meadows and isolated, potential wetlands was observed for the presence of the Colorado butterfly plant. The Colorado butterfly plant was not observed on the site. A similar species, Scarlet bee blossom (*Gaura coccinea*) was observed on the site and photographs of this species were submitted for confirmation to USFWS botanists. Two USFWS botanists confirmed the presence of the Scarlet bee blossom and the absence of the Colorado butterfly plant on the site. The presence of the Colorado butterfly plant on the site is considered unlikely.

The Ute ladies'-tresses orchid occurs along riparian edges, gravel bars, old oxbows, high flow channels and moist to wet meadows along perennial streams, within stable wetland, spring, seep or lake areas associated with historic floodplains of major rivers. During the site reconnaissance, Terracon observed small wet meadows and isolated, potential wetlands associated with surface water runoff. Ephemeral or intermittent drainageways were observed on the site, however perennial streams and associated floodplains, riparian edges, gravel bars, old oxbows, or high flow channels were not observed. The Ute ladies'-tresses orchid was not observed on the site, however, the site reconnaissance was performed outside of the inflorescence period for this species (late July through August), and lack of observation of this species during the July 9, 2009 site reconnaissance does not mean the species is considered absent from the site. However, based on the historic and current land

use of the site, and lack of suitable habitat, the occurrence of the Ute ladies'-tresses orchid on the site is considered unlikely.

The list of SC species is extensive; however, these species are not afforded protection under state regulations. The site likely contains habitat that would be suitable for some SC species, however, due to current and historical land use and existing fragmentation, the occurrence of SC species on the site will likely consist of generalist species and species tolerant of disturbance. However, SC species suspected of utilizing or occurring on the site are anticipated in small numbers of individuals (<100).

4.3 Faunal Resources

4.3.1 Avian Resources

During the site reconnaissance, eleven avian species were observed on or near the site and are included in the table below.

Table 7. Observed Avian Species

Scientific Name	Common Name
Dickcissel	*Spiza americana*
Mourning dove	*Zenaida macroura*
Redwing blackbird	*Agelaius phoeniceus*
Gray catbird	*Dumetella carolinensis*
Eastern kingbird	*Tyrannus tyrannus*
Western kingbird	*Tyrannus verticalis*
Western meadowlark	*Sturnella neglecta*
Lark bunting	*Calamospiza melanocorys*
Unidentified swallow	*Hirundo sp.*
Swainson's hawk	*Buteo swainsoni*
Northern harrier	*Circus cyaneus*
Upland sandpiper	*Bartramia longicauda*
Loggerhead shrike	*Lanius ludovicianus*
Mountain bluebird	*Sialia currucoides*

In addition, a Swainson's hawk nest with a female raptor and three offspring was observed adjacent to the site; the nest location is presented on Figures 3 through 6.

Species of conservation interest (e.g. T&E, SC (NSS1 – NSS3)) were not observed on or near the site. Based on limited review of readily available information and site observations,

large tracts of habitat suitable for T&E, or other SC avian species does not appear to be located on the site.

The majority of the site consists of cropland, pasture for livestock grazing and previously disturbed shortgrass and mixed-grass prairie which are typically inhabited primarily by generalist species and species tolerant of disturbance.

Based on the site reconnaissance, avian use of the site appears to be limited, predominantly, to relatively common grassland species. Species of conservation concern that may utilize the site are unlikely to be present for long periods of time (e.g. breeding season), and their use of the site would be considered individual sightings and not groups of individuals.

Suitable habitat for the Interior least tern, Piping plover and Whooping crane was not observed on the site. The small wet meadows and isolated, potential wetlands were not of significant size or hydrologic importance to attract these species. The presence of these species on the site, even during migration stopovers is unlikely.

The list of SC species is extensive; however, these species are not afforded protection under state regulations. The site likely contains habitat that would be suitable for some SC species, however, due to current and historical land use and existing fragmentation, the occurrence of SC species on the site will likely consist of generalist species and species tolerant of disturbance. However, SC species suspected of utilizing or occurring on the site are anticipated in small numbers of individuals (<100).

4.3.2 Other Wildlife Resources

During the site reconnaissance, common vertebrate and invertebrate wildlife was observed, including the Pronghorn antelope (*Antilocapra americana*).

Prairie dog towns were not observed on the site; therefore, suitable habitat for the Black-footed ferret is not located on the site.

Water bodies capable of sustaining individuals or populations of Pallid sturgeon were not observed on the site.

The majority of the site consists of cropland, pasture for livestock grazing and previously disturbed shortgrass and mixed-grass prairie which are typically inhabited primarily by generalist species and species tolerant of disturbance.

Suitable roosting or hibernacula habitat for bat species was not observed on or near the site. Bats may utilize the site during foraging activities but are not anticipated in large numbers (>100 individuals).

Species of conservation interest (e.g. T&E, SC (NSS1 – NSS3)) were not observed on or near the site. Based on limited review of readily available information and site observations, large tracts of habitat suitable for T&E, or other SC species does not appear to be located on the site. Small mammalian SC species may utilize the site; however, large numbers (>100 individuals) are not anticipated.

The list of SC species is extensive; however, these species are not afforded protection under state regulations. The site likely contains habitat that would be suitable for some SC species, however, due to current and historical land use and existing fragmentation, the occurrence of SC species on the site will likely consist of generalist species and species tolerant of disturbance. However, SC species suspected of utilizing or occurring on the site are anticipated in small numbers of individuals (<100).

5.0 FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

A TESA of the site was performed in general accordance with Proposal No. E0109101 dated June 11, 2009. A cursory summary of findings is provided below.

5.1 Findings and Conclusions

The site consists primarily of cropland, pasture for livestock grazing, shortgrass and mixed-grass prairie, small (< 1 acre) isolated wet meadows and potential wetlands. Much of the natural short and mixed grass vegetation located within the site has been impacted by current and historic agricultural use including cropland, over-grazing and pasture land. The landscape within and surrounding the site is fragmented. Fragmentation of these habitats does not provide the quality or quantity of habitat found in large contiguous tracts of the High Plains ecoregion at other locations within Platte County. The existing shortgrass and mixed-grass prairie habitat within and surrounding the site is fragmented due to the presence of fences, roads, residential farmsteads and land use. The quality of the habitats observed on site is considered marginal and wildlife abundance, richness, production and use of the available habitats on the site is considered low compared to similar habitats in the region.

During the site reconnaissance, T&E and SC species (NSS1 – NSS3) were not observed on or near the site.

Suitable habitat for the Blowout penstemon, Colorado butterfly plant, Ute ladies'-tresses orchid, and Western prairie fringed orchid was not observed on the site.

Natural vegetation on the site appears to be largely degraded due to agricultural conversion, overgrazing, invasive species, land use, land management and fragmentation. The historic short and mixed grass prairie floral communities associated with this region appear to have been reduced and replaced with agricultural crops. Generalist species and species tolerant of fragmented, disturbed habitats are prevalent in the area, however, each species observed was observed in low numbers (<100 individuals). Small, fragmented patches (<10 acres) of relatively intact prairie exists on the site, however, these patches are also currently susceptible to overgrazing by livestock.

Pronghorn antelope were observed on site and a portion of the site is located within this species winter range. Pronghorn antelope may avoid the area during development of the site but are not anticipated to avoid the site once development has ceased and the windfarm is in operation. Anthropogenic and livestock activity already occurs in the area and Pronghorn antelope was observed despite these activities. Negative impacts on this species due to development of the site are not anticipated. However, Terracon recommends avoiding the remaining, native short and mixed-grassed prairie on the site.

Several small (< 1 acre), isolated, wet meadows and isolated wetlands were observed throughout the site and will likely attract small numbers (< 100 individuals per species) of migrating birds during fall and spring migrations. However, it is unlikely that these water features would attract significant numbers of migrating species and low densities of relatively few individuals is to be expected over the entire site.

Common grassland birds are anticipated to utilize the site for nesting, but are not expected in large numbers (>100 individuals) due to the fragmented and patchy distribution of preferred habitats on the site and livestock activity. Based upon a review of readily available published information, nesting surveys have not been completed for the site. It should be noted that most resident grassland birds (those occupying the site, nesting, and making within-habitat movements) fly lower than the sweep of typical wind turbine rotor blades. Most resident grassland birds generally fly in the zone just above the surrounding vegetation.

Suitable habitats for large (>100 individuals) concentrations of migrating grassland songbirds were not observed on the site. Migration of such species through and over the site is likely; however, given the fragmentation and patchiness of native grassland areas on the site, migration is likely to be spread out over several square miles. The same is likely for other nocturnal migrating songbirds. Migration is expected to be diffuse due to the absence of large areas of habitats that typically support mass movements of grassland species (vast riparian woodlands, cedar groves, reservoirs and larger, more substantial wetlands).

Suitable habitats for large congregations of migrating raptors were not observed on the site. Raptor migration is expected to occur over the site at altitudes above the proposed rotor

height. Utilization of the site by small numbers of raptors is expected (e.g. individual Swainson's hawks (*Buteo swainsoni*), Red-tailed hawks (*Buteo jamaicensis*), etc.). However, large congregations of raptors are unlikely due to fragmentation, human activity, and livestock activity. One Swainson's hawk nest was observed adjacent to the site, however, other raptor nests and/or significant nesting habitat were not observed within the site.

Waterfowl may utilize the small, isolated wetlands observed on the site in individual numbers (<100). However, given the fragmented and patchy distribution of these habitats and the location of more prominent wetlands, reservoirs, lakes, and rivers within a several mile proximity of the site, migration is not likely to be concentrated over the site. In addition, migration of these species is expected to be above the height of the wind turbine rotors. Risk of collision with wind turbine rotors could occur for a fraction of the migrating populations that would stop over in the vicinity of the site. However, the literature does not indicate that waterfowl are particularly vulnerable to collisions with wind energy development structures. Only a few documented waterfowl collision fatalities exist for wind energy locations (Erickson et al. 2001, Erickson et al. 2002), and the impacts of the fatalities on populations is considered insignificant (Erickson et al. 2001).

Shorebirds and waterbirds typically limit their migration routes to shorelines and coastlines. Large numbers of these species are not anticipated to utilize the site or migrate over the site. Migration of these species typically occurs at elevations above the reaches of wind turbine rotors. Shorebird and waterbird collisions have occurred at relatively low numbers at wind energy developments, but the impacts to these populations is considered insignificant (Erickson et al. 2001, Erickson et al. 2002).

Avian mortality associated with wind turbines has been reported across the globe (Johnson et al. 2002, Erickson et al. 2001, Winkelman 1990, Strickland et al. 2000, Howe and Atwater 1999). A review of readily available literature has not revealed incidents of large numbers of avian fatalities in association with wind farms located in farmlands and grasslands of the Midwest (Erickson et al. 2001). Annual avian collision mortality at wind generation facilities in the United States is estimated to be between 10,000 and 40,000 birds. This estimate is far less than the estimate of 4 million to 50 million avian fatalities due to collisions with communication towers (Erickson et al. 2001).

Additionally, authors of *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons of Avian Collision Mortality in the US* indicate avian mortality from wind energy development is "considered insignificant," however, "additional monitoring may provide important information (Erickson et al. 2001)." Placement of wind turbines within already heavily fragmented, over-grazed areas of the site is not anticipated to cause significant impacts to wildlife, including avian species.

Bats were not observed during the site reconnaissance. Evidence of bat activity or utilization of the site was not observed. Large numbers of bats are not anticipated to utilize the site due to limited suitable roosting habitats. However, a lack of observation of bats and suitable roosting habitats does not preclude their potential occurrence on the site, and bats, including migratory species, may utilize the site during feeding activities, but are likely to be found in rare occurrences and in low densities.

The placing of wind turbine generators in areas heavily utilized by avian species for foraging, nesting, roosting, migratory corridors, stopovers, etc., has been associated with increased mortality among avian species (AWEA 1995, Howell and Didonato 1991, Orloff and Flannery 1992). Avoiding areas where large concentrations of avian species congregate has been recommended to reduce avian mortality associated with wind power sites (USFWS 2003). In Terracon's opinion, the site does not contain areas where large concentrations of birds would congregate.

Based on our literature review and site observations, the site does not contain expansive, contiguous tracts of habitat suitable for federal listed species. Other locations in Platte County have the potential to produce greater species richness and abundance. The site is heavily fragmented, is routinely disturbed by human and livestock activity, and grassland habitat has been impacted by over-grazing, invasive species, and agricultural conversion.

The site likely contains habitat that would be suitable for some SC species, however, due to current and historical land use and existing fragmentation, the occurrence of SC species on the site will likely consist of generalist species and species tolerant of disturbance. However, SC species suspected of utilizing or occurring on the site are anticipated in small numbers of individuals (<100). Development of the site as a windfarm is not likely to have negative effects on populations of SC species. Anthropogenic and livestock activity already occurs in the area. Short-term avoidance of the area by SC species is expected during development but is also expected to resume to normal occurrences and use once anthropogenic activities associated with development have been reduced.

5.2 Recommendations

Terracon recommends avoiding impacts to the wet meadows and isolated wetlands on the site. If in future site visits, prairie dog towns are discovered, Terracon recommends avoiding disturbing these habitats. Terracon recommends avoiding placing turbines within the existing patches of native short and mixed-grass prairie. Terracon recommends placing turbines within the already fragmented and disturbed landscapes on the site.

If turbines are placed within the existing patches of native short and mixed-grass prairie they should be placed as close as possible (considering recommended set-backs) to an existing

structure (i.e., existing tower, building) to avoid further habitat fragmentation for grassland species and to minimize possible impacts of turbine placements.

Based on the scope of services and limitations of this assessment, Terracon concludes that given the current land management practices observed at the site and existing habitat fragmentation and patchiness due to the presence of fences, roads, and other anthropogenic site features, construction and operation of wind power generators would not likely significantly impact migratory and/or T&E plant species, avian species, bats, or other floral and faunal resources. Avian and/or bat collisions at wind energy developments cannot be wholly avoided, but following the guidelines set forth in the following documents: *Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* of the USFWS (2003); *Avian Protection Plan (APP) Guidelines* of The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and the USFWS (2005), will minimize impacts.

This report should be forwarded to the USFWS and WDGF for their review and determination of additional surveys requested/required (if any). The client may propose post-construction monitoring adhering to the guidelines of the National Wind Coordinating Committee (Anderson et al. 1999), if additional pre-construction surveys are not an option. If mortality is determined to be a concern or a significant impact to avian or bat populations, the wind energy development should consider changes in turbine siting, turbine modifications, or shutting down turbines during seasonal periods when birds and/or bats are highly concentrated, if any, depending on the species potentially affected. Avian and bat impacts with wind energy development cannot be completely avoided, but can be minimized effectively. Some collisions can be expected but a reduction in the risk of avian and bat mortality is a possibility with proper turbine placement. Avian and bat use of the site (particularly near turbine locations) may be reduced until the resident species adapt to the presence of the structures, which is likely to be expected.

Terracon recommends avoiding disturbance of waterbodies and existing fragmented native habitats on the site. Terracon recommends placing wind turbines in areas of the site where ground disturbing activities have previously occurred (e.g. agricultural fields, etc.).

6.0 GENERAL COMMENTS

A TESA, such as the one performed at this site, is of limited scope, is noninvasive, and cannot eliminate the potential that MBTA and/or other floral/faunal concerns are present at the site beyond what is identified by the limited scope of this TESA. A lack of observation of endangered, threatened, or other species of conservation concern does not preclude their occurrence within or near the site. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. No biological

assessment can wholly eliminate uncertainty regarding the potential for concerns in connection with a project. Collecting data at different times and locations may indicate different results. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the site or otherwise uses the report for any other purpose. Information obtained for this TESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the site's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of MBTA and/or other floral/faunal concerns may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after site renovation or development). Further, these services are not to be construed as legal interpretation or advice.
Terracon does not warrant the work of regulatory agencies or other parties supplying information, which may have been used during the preparation of this report.

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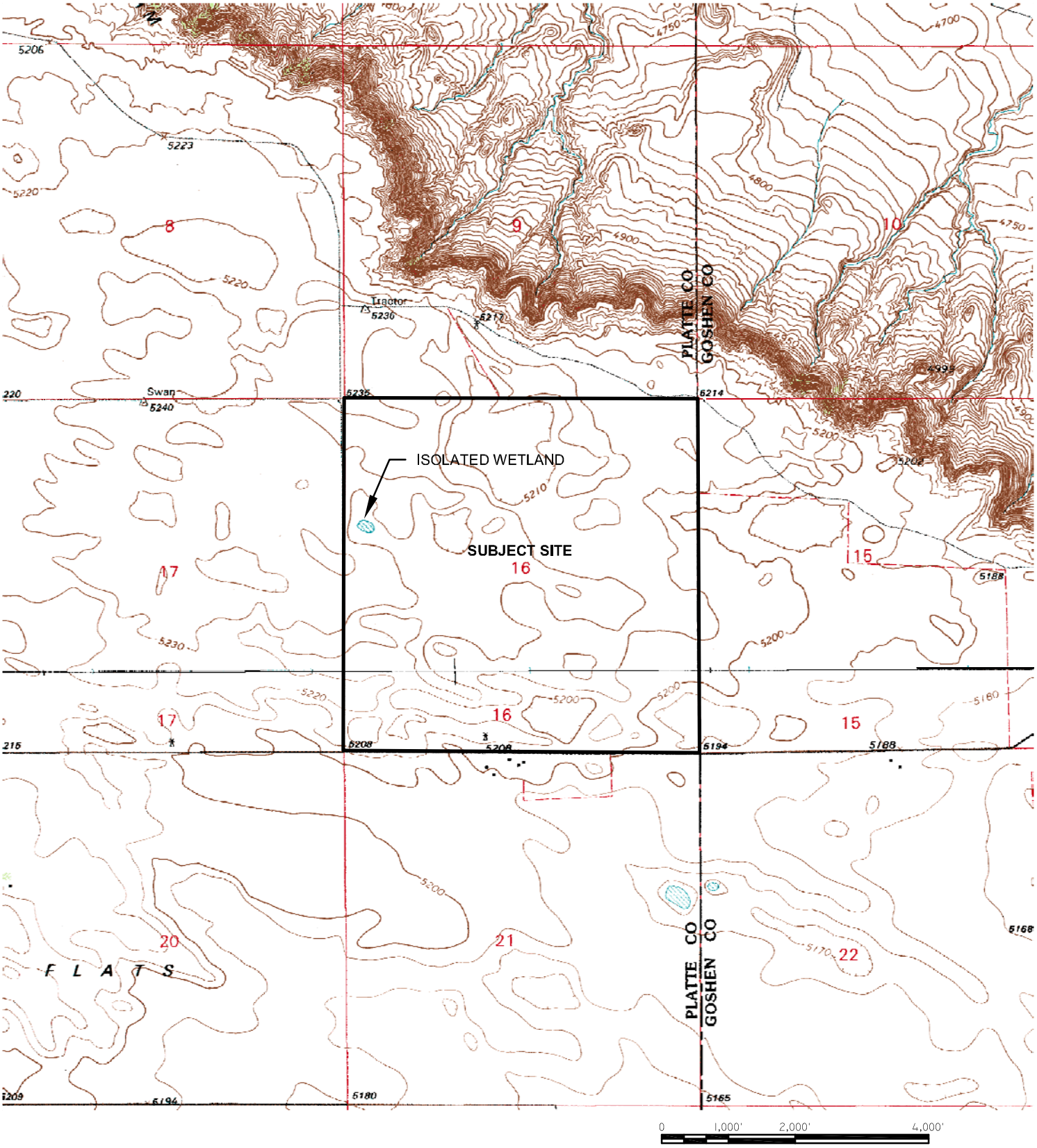
FIGURES



DICKINSON HILL QUADRANGLE
WYOMING - PLATTE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
1990

APPROXIMATE SECTION 16,
TOWNSHIP 22 NORTH,
RANGE 65 WEST.

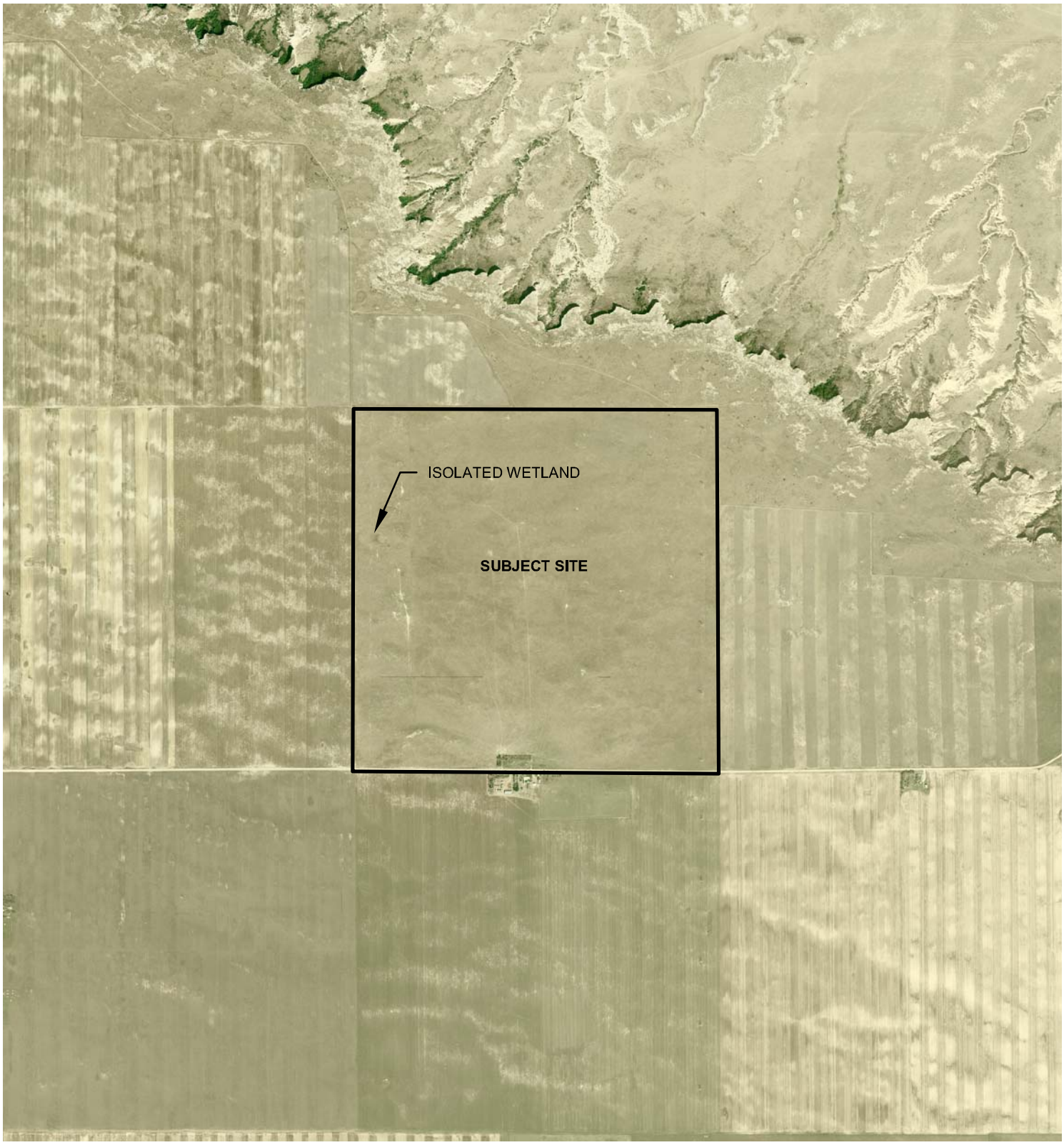
N

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

TOPOGRAPHIC MAP
PROPOSED PLATTE COUNTY WIND PROJECT

PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr:	KRA	Terracon	Scale:	SHOWN
Designed By:	KRA	1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Date:	06/30/09
Checked By:	KRA		Project No.	24097709
Approved By:	JCB		File Name:	7709FI.DWG
Drawn By:	BCB		Figure No.	1



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APPROXIMATE SECTION 16,
TOWNSHIP 22 NORTH,
RANGE 65 WEST.

2006 AERIAL PHOTOGRAPH PROVIDED
BY THE STATE OF WYOMING NAIP.

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SITE DIAGRAM
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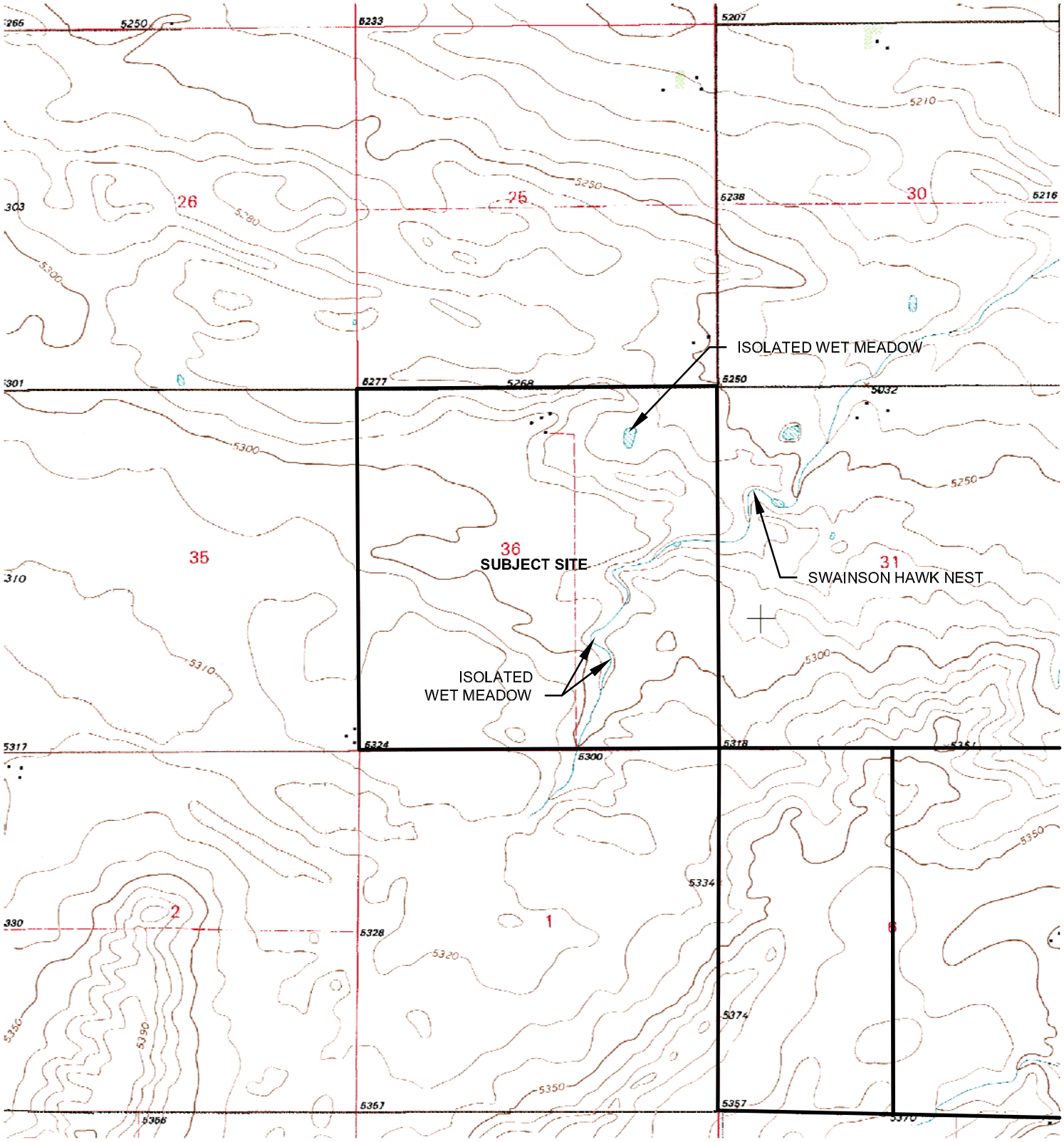
PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr: KRA	Terracon	Scale:	SHOWN
Designed By: KRA	1815 S. Eisenhower	Date:	06/30/09
Checked By: KRA	Wichita, Kansas 67209	Project No.	24097709
Approved By: JCB	Phone: (316) 262-0171	File Name:	7709F2.DWG
Drawn By: BCB	Fax: (316) 262-6997	Figure No.	2



KLUTZ CANYON QUADRANGLE
WYOMING - PLATTE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
1990

APPROXIMATE SECTION 36,
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Checked By:	KRA		Project No.	24097709
Approved By:	JCB		File Name:	7709F3.DWG
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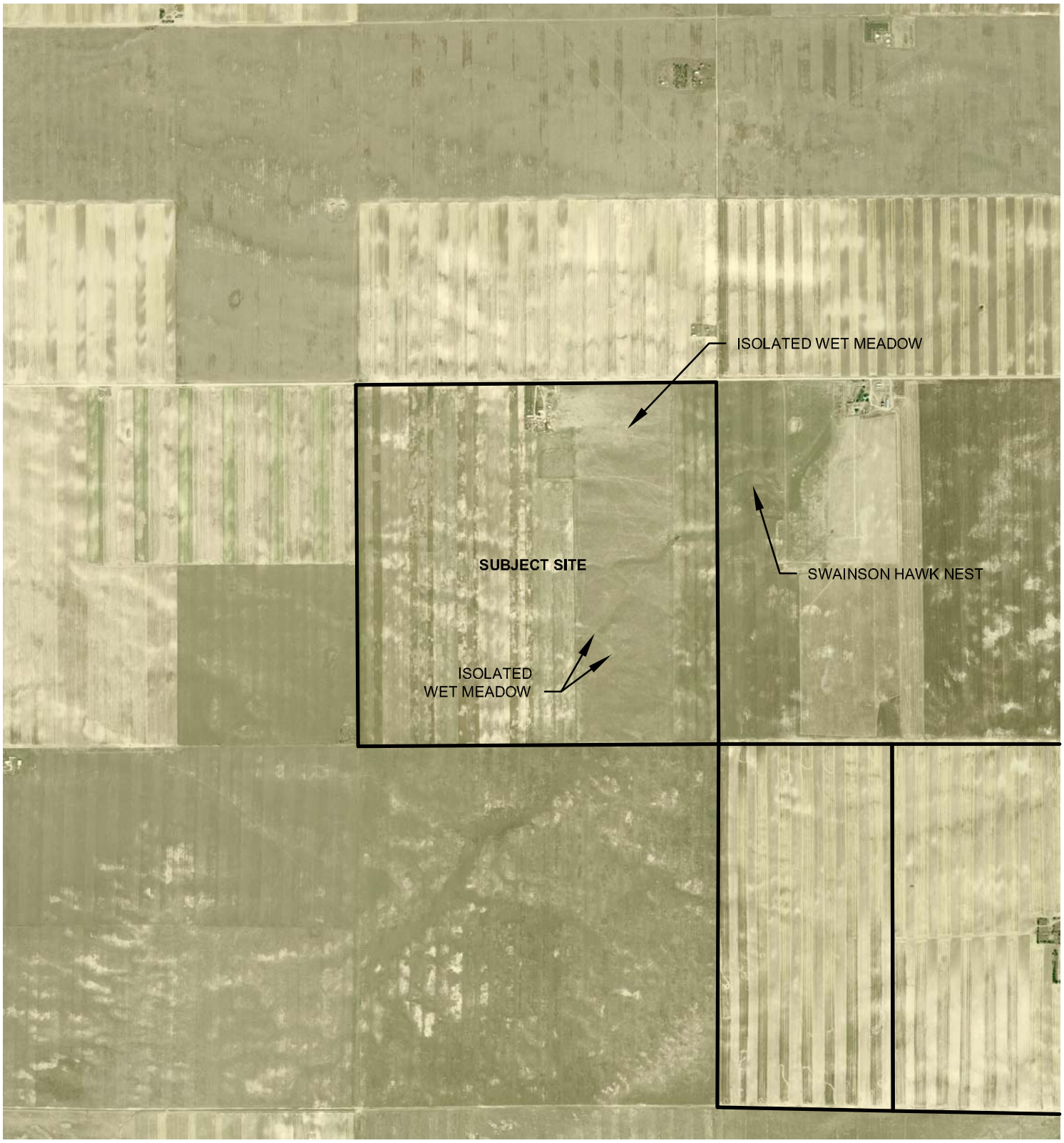

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APPROXIMATE SECTION 36,
TOWNSHIP 22 NORTH,
RANGE 66 WEST.

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BY THE STATE OF WYOMING NAIP.

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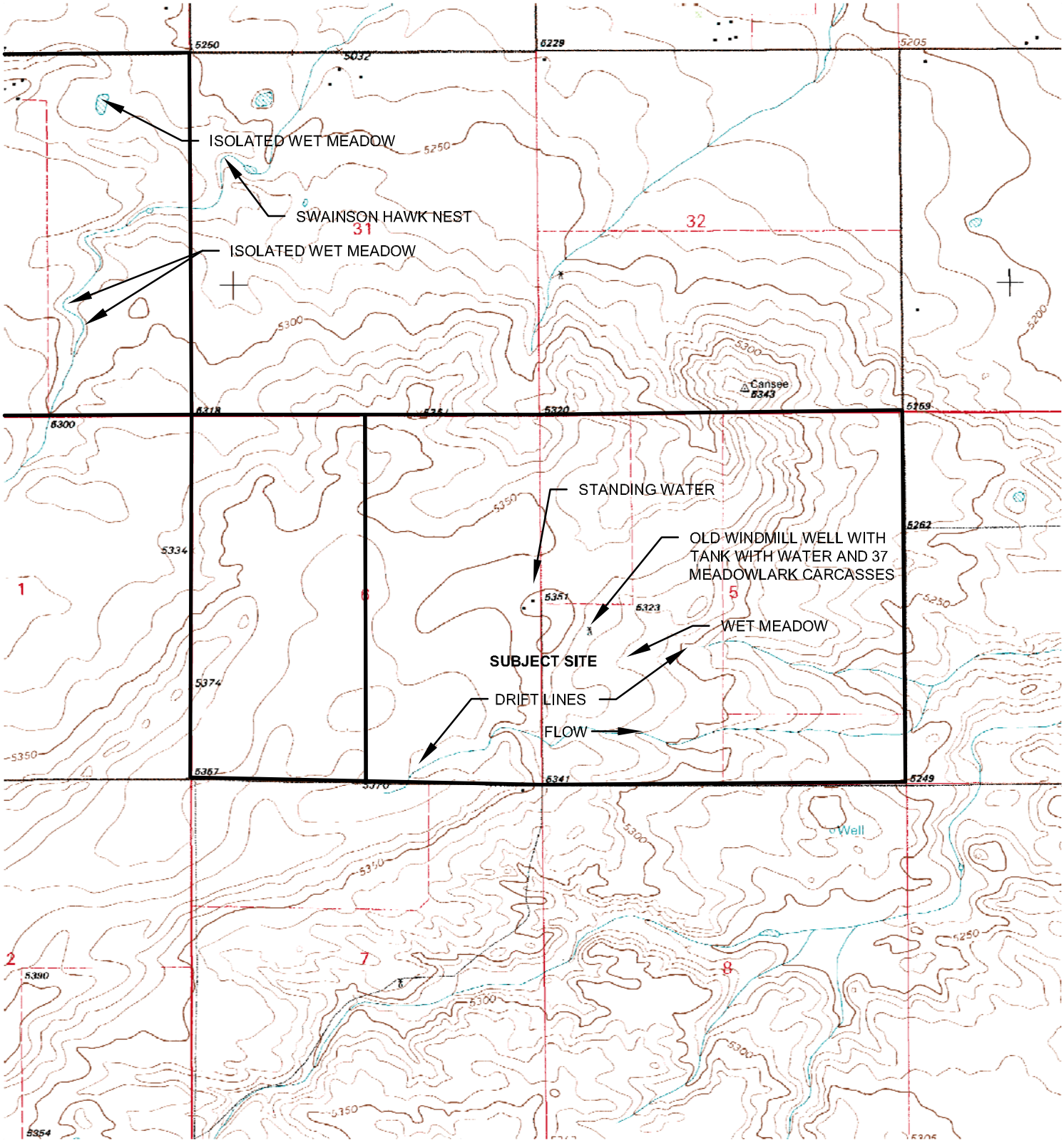
PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr: KRA	Terracon	Scale:	SHOWN
Designed By: KRA	1815 S. Eisenhower	Date:	06/30/09
Checked By: KRA	Wichita, Kansas 67209	Project No.	24097709
Approved By: JCB	Phone: (316) 262-0171	File Name:	7709F4.DWG
Drawn By: BCB	Fax: (316) 262-6997	Figure No.	4



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KLUTZ CANYON QUADRANGLE
WYOMING - PLATTE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
1990

APPROXIMATE SECTIONS 5 & 6,
TOWNSHIP 21 NORTH,
RANGE 65 WEST.

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TOPOGRAPHIC MAP
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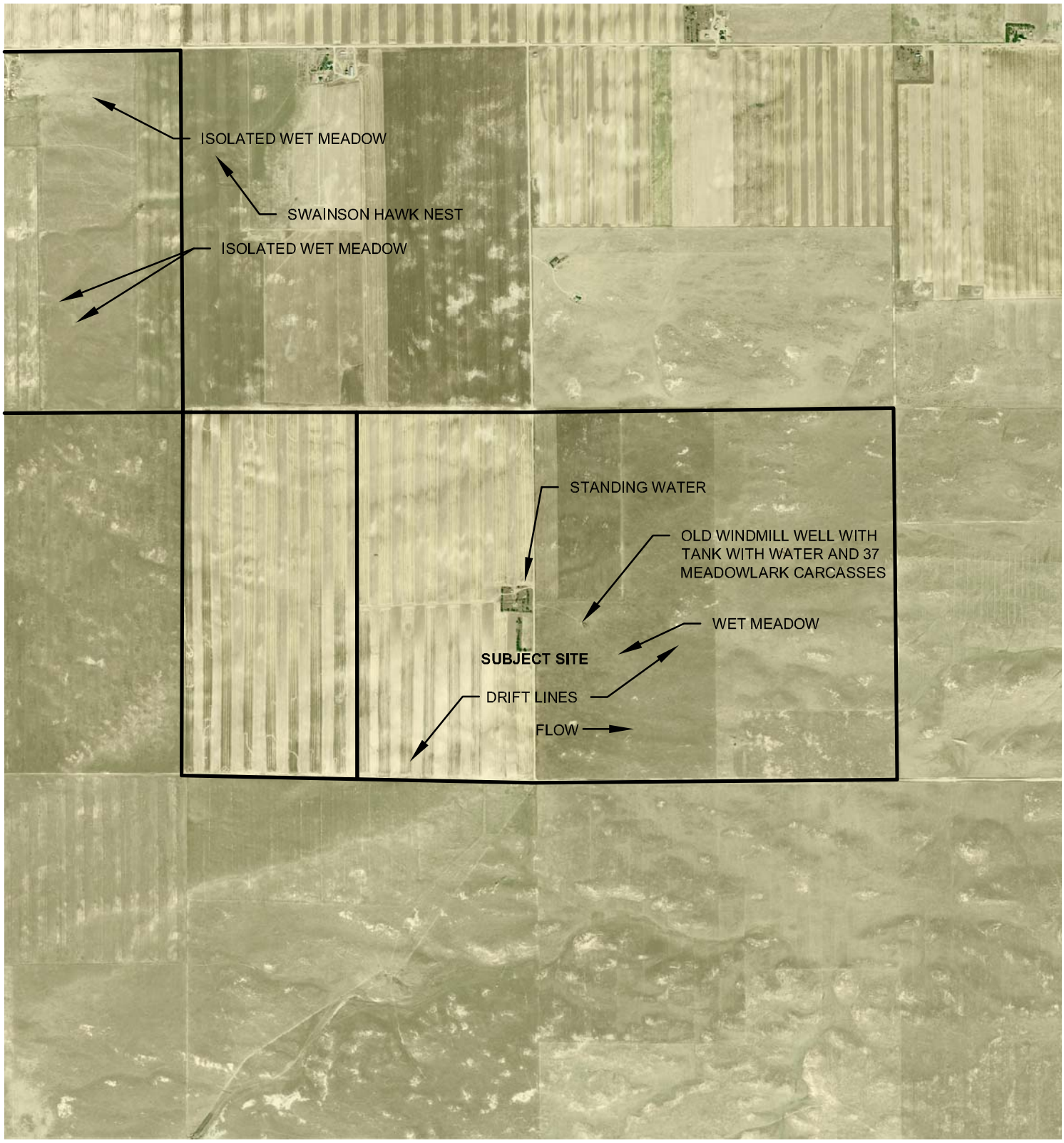
Checked By: KRA	Wichita, Kansas 67209	Project No.	24097709
Approved By: JCB	Phone: (316) 262-0171	File Name:	7709F5.DWG
Drawn By: BCB	Fax: (316) 262-6997	Figure No.	5



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APPROXIMATE SECTIONS 5 & 6,
TOWNSHIP 21 NORTH,
RANGE 65 WEST.

2006 AERIAL PHOTOGRAPH PROVIDED
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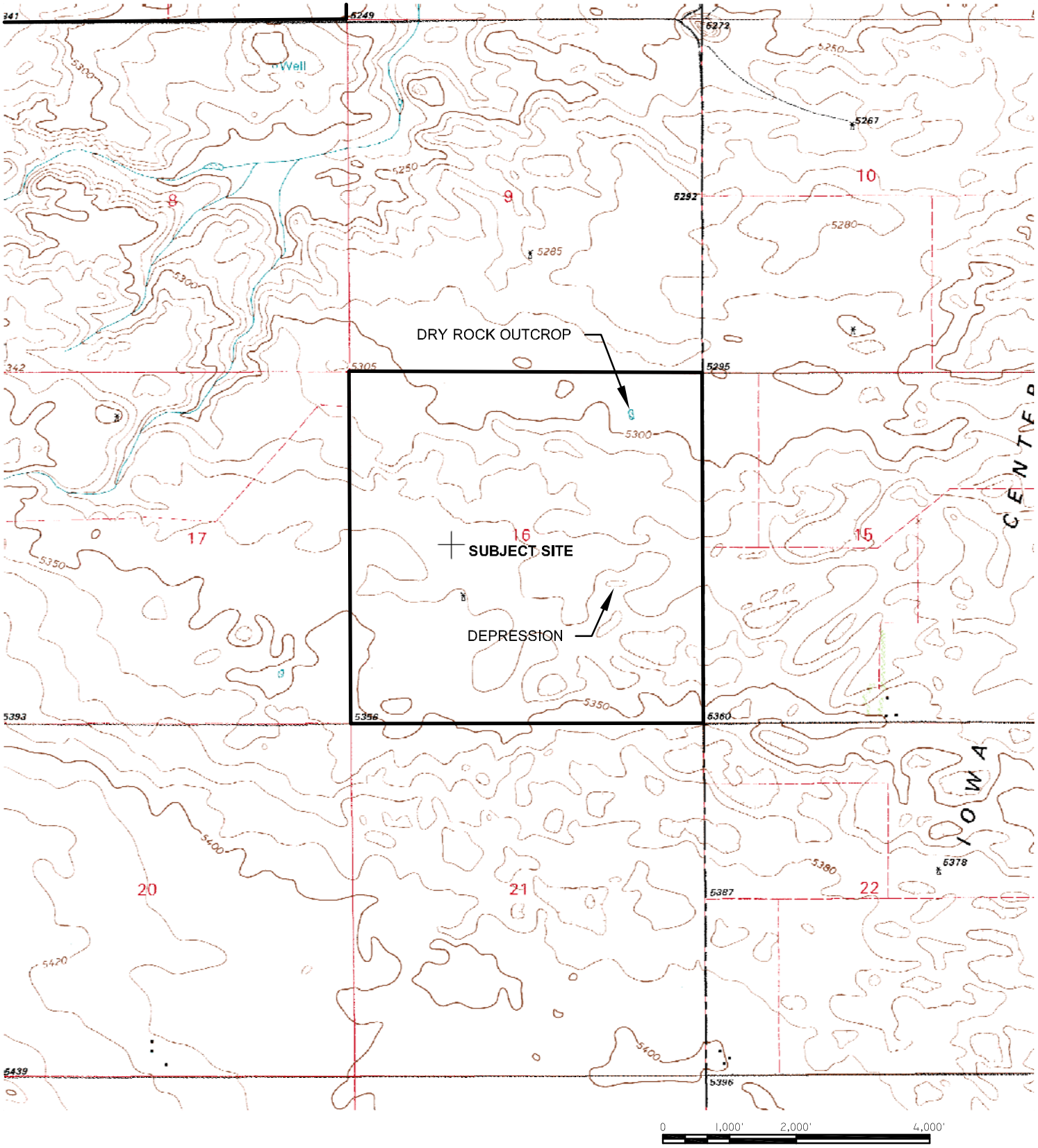

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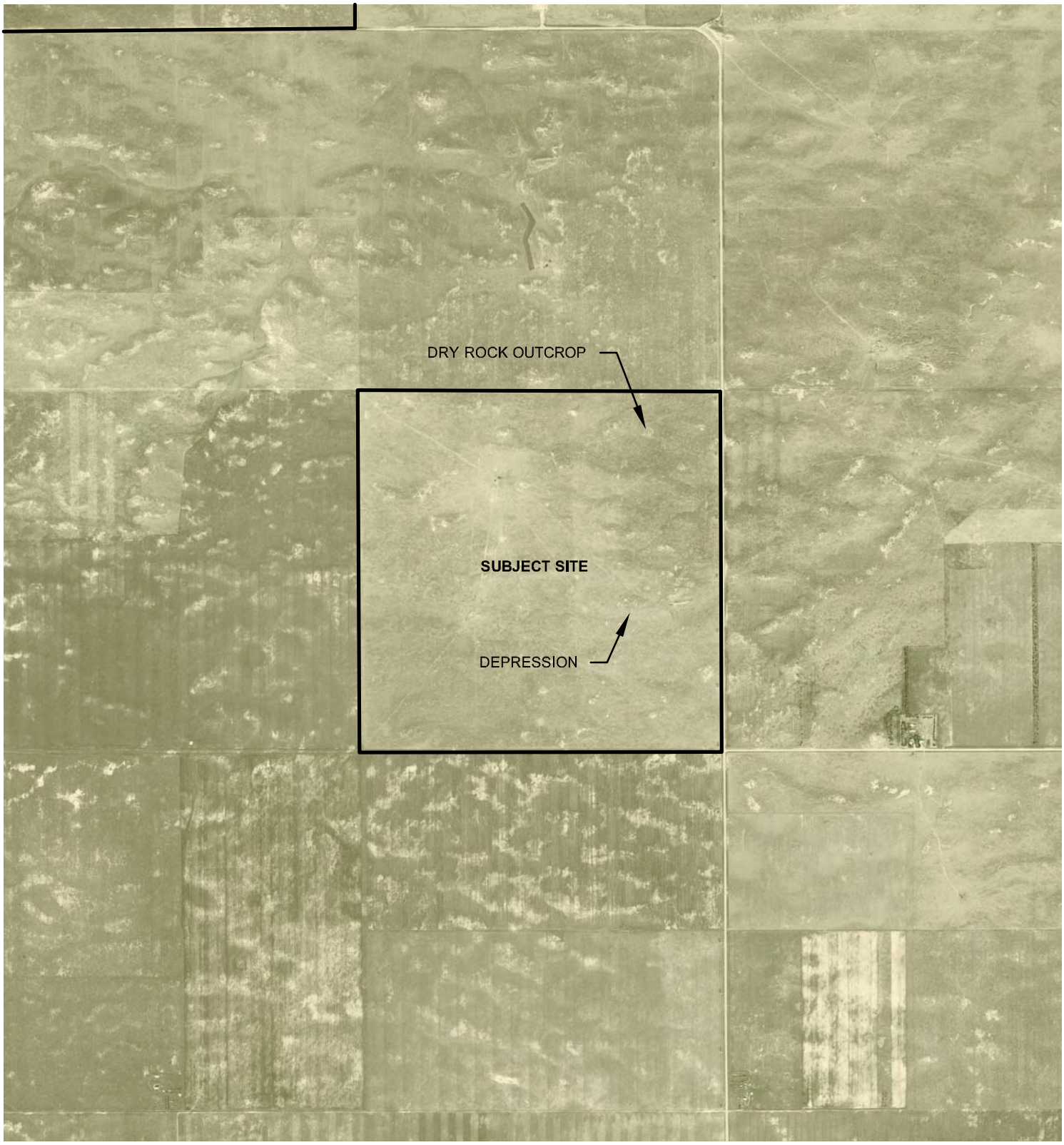
Project Mngr: KRA	Terracon	Scale:	SHOWN
Designed By: KRA	1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Date:	06/30/09
Checked By: KRA		Project No.	24097709
Approved By: JCB		File Name:	7709F7.DWG
Drawn By: BCB		Figure No.	7



0 1,000' 2,000' 4,000'

APPROXIMATE SECTION 16,
TOWNSHIP 21 NORTH,
RANGE 65 WEST.

2006 AERIAL PHOTOGRAPH PROVIDED
BY THE STATE OF WYOMING NAIP.

N

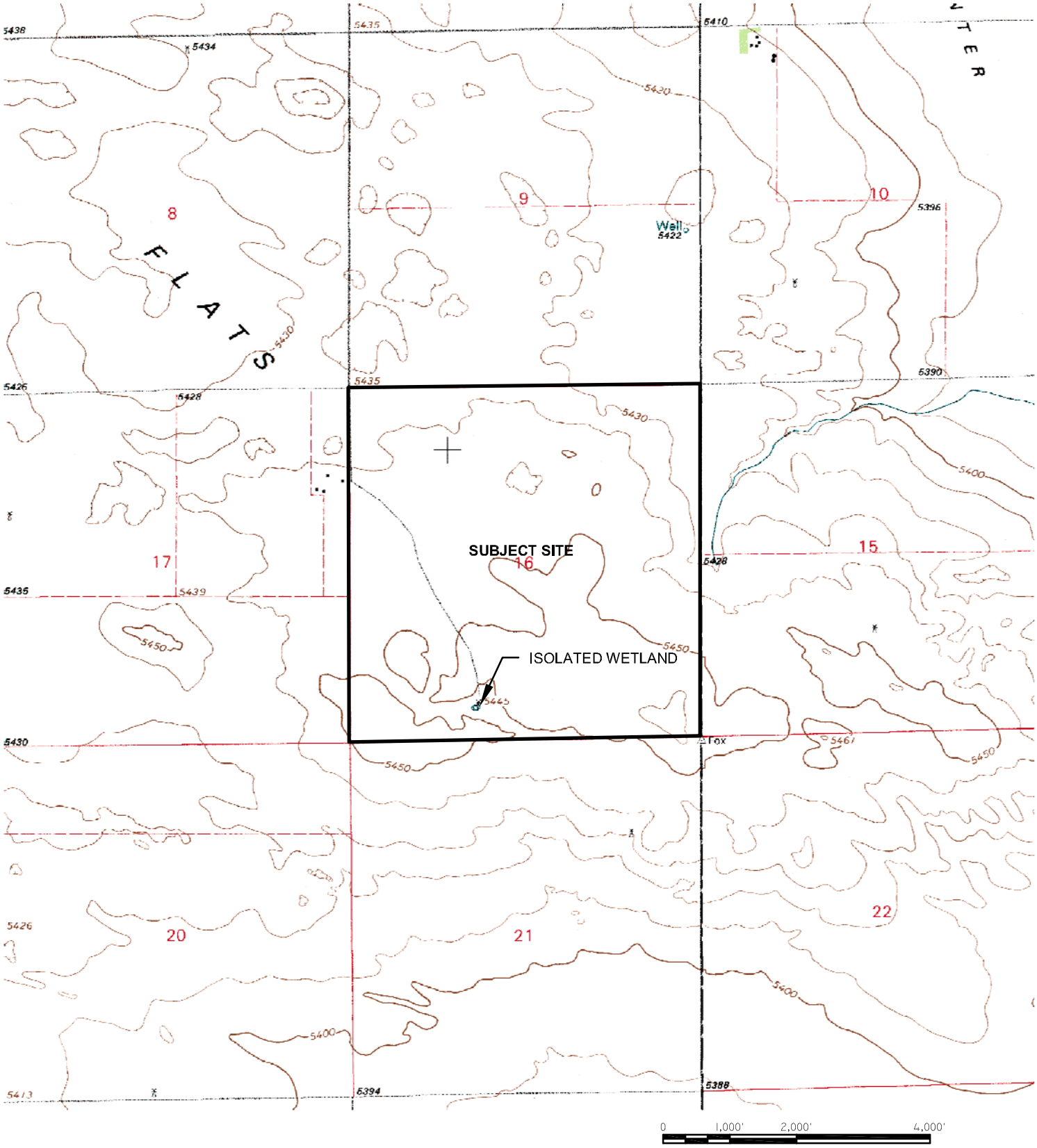
DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

SITE DIAGRAM
PROPOSED PLATTE COUNTY WIND PROJECT

PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr:	KRA	Scale:	SHOWN
Designed By:	KRA	Date:	06/30/09
Checked By:	KRA	Project No.	24097709
Approved By:	JCB	File Name:	7709F8.DWG
Drawn By:	BCB	Figure No.	8

Terracon
1815 S. Eisenhower
Wichita, Kansas 67209
Phone: (316) 262-0171
Fax: (316) 262-6997



C S RANCH QUADRANGLE
WYOMING - PLATTE COUNTY
7.5 MINUTE SERIES (TOPOGRAPHIC)
1990

APPROXIMATE SECTION 16,
TOWNSHIP 20 NORTH,
RANGE 65 WEST.

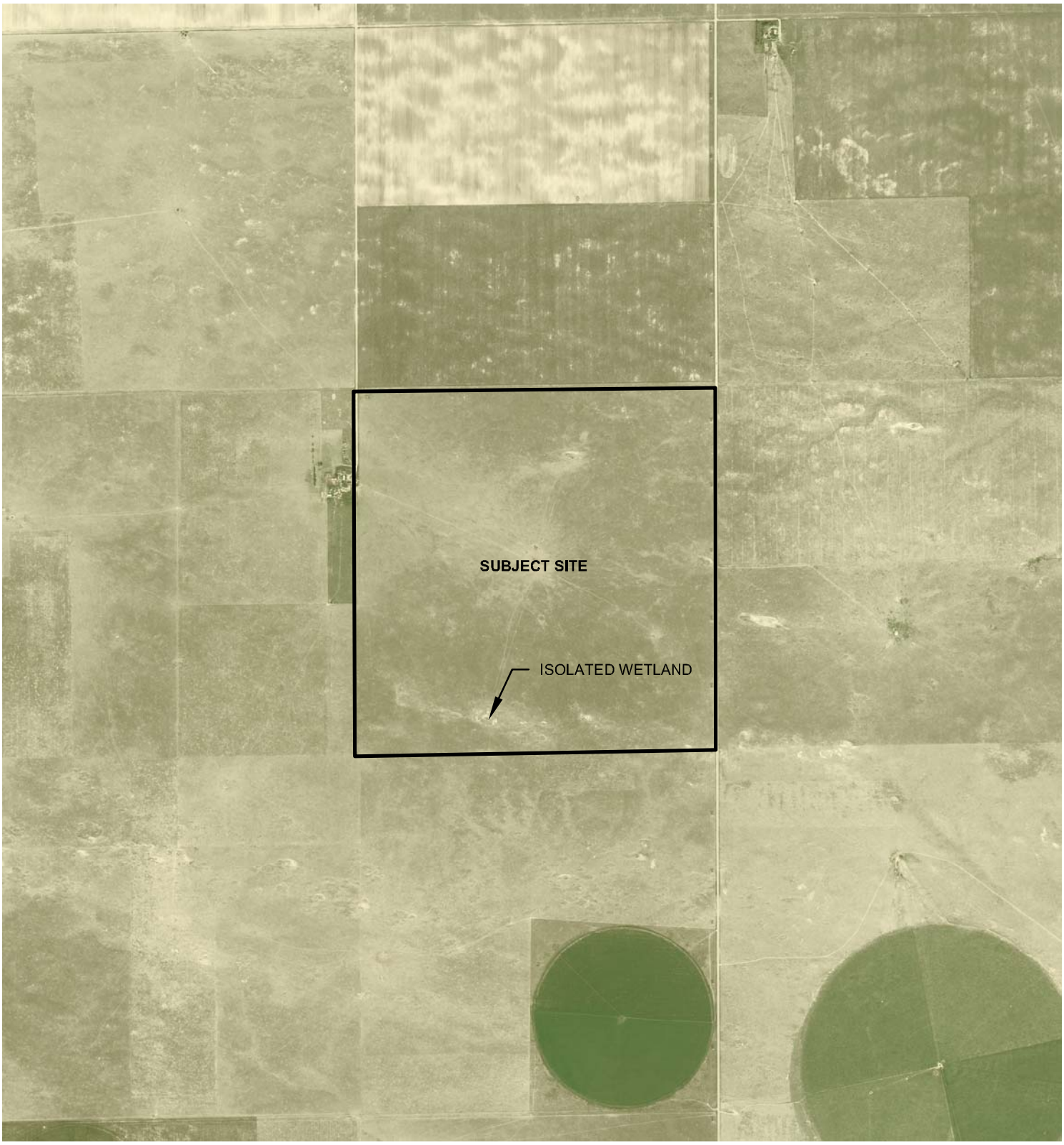
N

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

TOPOGRAPHIC MAP
PROPOSED PLATTE COUNTY WIND PROJECT

PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr:	KRA	Terracon	Scale:	SHOWN
Designed By:	KRA	1815 S. Eisenhower Wichita, Kansas 67209 Phone: (316) 262-0171 Fax: (316) 262-6997	Date:	06/30/09
Checked By:	KRA		Project No.	24097709
Approved By:	JCB		File Name:	7709F9.DWG
Drawn By:	BCB		Figure No.	9



0 1,000' 2,000' 4,000'

APPROXIMATE SECTION 16,
TOWNSHIP 20 NORTH,
RANGE 65 WEST.

2006 AERIAL PHOTOGRAPH PROVIDED
BY THE STATE OF WYOMING NAIP.

N

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT
FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

SITE DIAGRAM
PROPOSED PLATTE COUNTY WIND PROJECT

PLATTE COUNTY, WYOMING
CLIENT: NOVELUTION WIND LLC

Project Mngr: KRA	Terracon	Scale:	SHOWN
Designed By: KRA	1815 S. Eisenhower	Date:	06/30/09
Checked By: KRA	Wichita, Kansas 67209	Project No.	24097709
Approved By: JCB	Phone: (316) 262-0171	File Name:	7709FI0.DWG
Drawn By: BCB	Fax: (316) 262-6997	Figure No.	10

APPENDIX A

Photo #1 – View of typical signage associated with the State land sections.

Photo #2 – View of the south side of T22-R65-S16 looking west across overgrazed pasture.

Photo #3 – View of south side of T22-R65-S16 looking north at historic farmstead landscape and overgrazed pasture.

Photo #4 – View of south side of T22-R65-S16 looking west across historic farmstead landscape and overgrazed pasture.

Photo #5 – View of south side of T22-R65-S16 looking north at well, fragmentation of landscape and overgrazed pasture.

Photo #6 – View of south side of T22-R65-S16 looking north at well and overgrazed pasture.

Photo #7 – View of south side of T22-R65-S16 looking southwest across agricultural field.

Photo #8 – View of T22-R65-S16 looking east across pasture and prairie.

Photo #9 – View of east side of T22-R65-S16 looking south at high voltage power lines across overgrazed pasture and prairie.

Photo #10 – View of west side of T22-R65-S16 looking north at wetland.

Photo #11 – View of east side of T22-R66-S36 looking south pasture and prairie.

Photo #12 – View of northeast side of T22-R66-S36 looking south at wet meadow.

Photo #13 – View of southern half of T22-R66-S36 looking west at wet meadow.

Photo #14 – View of eastern half of T22-R66-S36 looking west across overgrazed pasture at farm house.

Photo #15 – View of east half of T22-R66-S36 looking east-southeast across overgrazed pasture.

Photo #16 – View of east half of T22-R66-S36 looking west.

Photo #17 – View of south half of T22-R66-S36 looking at wet meadow.

Photo #18 – View of west half of T22-R66-S36 looking south across agricultural field.

Photo #19 – View of farm house located on T22-R66-S36 looking south from Havely Road.

Photo #20 – View of typical signage associated with State land sections.

Photo #21 – View of west half of T21-R65-S6 looking southeast across agricultural field.

Photo #22 – View of north boundary line of T21-R65-S6 looking east across agricultural field.

Photo #23 – View of east half of T21-R65-S6 looking north at agricultural field and surface water due to recent precipitation event.

Photo #24 – View of west half of T21-R65-S6 looking south at old farm across overgrazed pasture.

Photo #25 – View of typical woody debris pile near historic or current residential or farmstead structures that may be used as habitat.

Photo #26 – View of typical isolated, potential wetland on the site.

Photo #27 – View of typical invasive species (foreground) on the site. Overgrazed pasture in the background of photograph.

Photo #28 – View of typical wet meadow on the site.

Photo #29 – View of concentrated llama refuse on the site.

Photo #30 – View of standing water within a typical low depression/drainageway on the site.

Photo #31 – View of typical drainageway with driftlines on the site.

Photo #32 – View of typical drainageway with driftlines on the site.

Photo #33 – View of west half of T21-R65-S6 looking south of farm house across overgrazed pasture with historic farmstead landscape.

Photo #34 – View of typical wet meadow located on the site.

Photo #35 – View of north half of T21-R65-S5 looking south across agricultural field.

Photo #36 – View of north half of T21-R65-S5 looking west across prairie and pasture.

Photo #37 – View of fragmentation and overgrazed pasture across the site.

Photo #38 – View of east portion of T21-R65-S16 looking west across pasture and prairie.

Photo #39 – View of east boarder of T21-R65-S16 looking south, notice fragmentation due to fence, road, land use and transmission line.

Photo #40 – View of south portion of T20-R65-S16 looking northwest at wetland.

Photo #41 – View of south portion of T20-R65-S16 looking northwest across overgrazed pasture.

Photo #42 – View of south portion of T20-R65-S16 looking northeast across overgrazed pasture.

Photo #43 – View of south portion of T20-R65-S16 looking south across overgrazed pasture.

Photo #44 – View of typical isolated, potential wetland on the site.

Photo #45 – View of south portion of T20-R65-S16 looking at typical wet meadow.

Photo #46 – View of south portion of T20-R65-S16 looking east across overgrazed pasture.

APPENDIX B

Comprehensive Wildlife Conservation Strategy

(All documents are in Adobe PDF format)

Mammals

Abert's Squirrel
Big Brown Bat
Bighorn Sheep
Black-footed Ferrett
Black-tailed Prairie Dog
Canada Lynx
Canyon Mouse
Cliff Chipmunk
Dwarf Shrew
Fisher
Fringed Myotis
Great Basin Pocket Mouse
Grizzly Bear
Hayden's Shrew
Hispid Pocket Mouse
Hoary Bat
Idaho Pocket Gopher
Least Weasel
Little Brown Myotis
Long-eared Myotis
Long-legged Myotis
Marten
Meadow Jumping Mouse
Moose
Northern Flying Squirrel
Northern Myotis
Olive-backed Pocket Mouse
Pallid Bat
Pinyon Mouse
Plains Harvest Mouse
Plains Pocket Gopher
Plains Pocket Mouse
Prairie Vole
Preble's Shrew
Pygmy Rabbit
Pygmy Shrew
River Otter
Sagebrush Vole
Silky Pocket Mouse
Silver-haired Bat
Spotted Bat
Spotted Ground Squirrel
Swift Fox
Townsend's Big-eared Bat
Uinta Ground Squirrel
Vagrant Shrew
Water Shrew
Water Vole
Western Heather Vole
Western Small-footed Myotis
White-tailed Prairie Dog
Wolverine
Wyoming Ground Squirrel
Wyoming Pocket Gopher

Comprehensive Wildlife Conservation Strategy

(All documents are in Adobe PDF format)

Birds

American Bittern
American Three-toed Woodpecker
American White Pelican
Ash-throated Flycatcher
Bald Eagle
Barrow's Golden Eye
Black-backed Woodpecker
Black-crowned Night-Heron
Black Tern
Black Rosy Finch
Bobolink
Boreal Owl
Brewer's Sparrow
Brown-capped Rosy Finch
Burrowing Owl
Bushtit
Canvasback
Caspian Tern
Chestnut-collared Longspur
Clark's Grebe
Columbian Sharp-tailed Grouse
Common Loon
Dickcissel
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Grasshopper Sparrow
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Greater Sandhill Crane
Harlequin Duck
Juniper Titmouse
Lark Bunting
Lesser Scaup
Lewis's Woodpecker
Long-billed Curlew
McCown's Longspur
Merlin
Mountain Plover
Northern Goshawk
Northern Pintail
Northern Pygmy-Owl
Peregrine Falcon
Pygmy Nuthatch
Redhead
Sage Sparrow
Sage Thrasher
Scott's Oriole
Short-eared Owl
Snowy Egret
Swainson's Hawk
Trumpeter Swan
Upland Sandpiper

Virginia Rail
Western Grebe
Western Scrub-Jay
White-faced Ibis
Willow Flycatcher
Yellow-billed Cuckoo

Comprehensive Wildlife Conservation Strategy

(All documents are in Adobe PDF format)

Reptiles

Black Hills Red-bellied Snake
Bullsnake
Cliff Tree Lizard
Common Garter Snake
Eastern Yellow-bellied Racer
Great Basin Gophersnake
Great Plains Earless Lizard
Greater Short-horned Lizard
Intermountain Wandering Garter Snake
Midget Faded Rattlesnake
Northern Many-lined Skink
Northern Plateau Lizard
Northern Prairie Lizard
Northern Sagebrush Lizard
Ornate Box Turtle
Pale Milksnake
Plains Black-headed Snake
Plains Garter Snake
Plains Hog-nosed Snake
Prairie Racerunner
Prairie Rattlesnake
Red-lipped Plateau Lizard
Rubber Boa
Smooth Green Snake
Western Painted Turtle
Western Spiny Softshell

Comprehensive Wildlife Conservation Strategy

(All documents are in Adobe PDF format)

Fish

Arctic Grayling.pdf
Bigmouth Shiner.pdf
Black Bullhead.pdf
Bluehead Sucker.pdf
Bonneville Cutthroat Trout.pdf
Burbot.pdf
Central Stoneroller.pdf
Channel Catfish.pdf
Colorado River Cutthroat Trout.pdf
Common Shiner.pdf
Finescale Dace.pdf
Flannelmouth Sucker.pdf
Flathead Chub.pdf
Goldeye.pdf
Hornyhead Chub.pdf
Iowa Darter.pdf
Kendall Warm Springs Dace.pdf
Lake Chub.pdf
Leatherside Chub.pdf
Mottled Sculpin.pdf
Mountain Sucker.pdf
Mountain Whitefish.pdf
Northern Pearl Dace.pdf
Orangethroat Darter.pdf
Paiute Sculpin.pdf
Plains Minnow.pdf
Plains Topminnow.pdf
Quillback.pdf
River Carpsucker.pdf
Roundtail Chub.pdf
Sauger.pdf
Shorthead Redhorse.pdf
Shovelnose Sturgeon.pdf
SnakeRiver Cutthroat Trout.pdf
Stonecat.pdf
Sturgeon Chub.pdf
Suckermouth Minnow.pdf
Western Silvery Minnow.pdf
Westslope Cutthroat.pdf
Yellowstone Cutthroat Trout.pdf

Comprehensive Wildlife Conservation Strategy

(All documents are in Adobe PDF format)

Amphibians

Boreal Chorus Frog.pdf
Boreal Toad.pdf
American Bullfrog.pdf
Columbia Spotted Frog.pdf
Great Basin Spadefoot.pdf
Great Plains Toad.pdf
Northern Leopard Frog.pdf
Plains Spadefoot.pdf
Tiger Salamander.pdf
Wood Frog.pdf
Woodhouse's Toad.pdf
Wyoming Toad.pdf

Comprehensive Wildlife Conservation Strategy

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(All documents are in Adobe PDF format)

Mollusks and Crustaceans

California Floater
Crayfish
Cylindrical Papershell
Fatmucket
Freshwater Snails (Gastropods)
Giant Floater
Jackson Lake Springsnail
Land Snails
Mountainsnails
Plain Pocketbook
Shrimp
Vertigo Snails
Western Pearlshell
White Heelsplitter

Appendix H
Training Materials

Novelution Wind, LLC

CHUGWATER FLATS ENERGY PROJECT

WILDLIFE INCIDENT REPORTING AND HANDLING SYSTEM

JANUARY 2010

BACKGROUND AND INTRODUCTION

The US Fish and Wildlife Service (USFWS) requests that casualties of birds protected under the Bald and Golden Eagle Protection Act, the Endangered Species Act, and the Migratory Bird Treaty Act be reported. Chugwater Flats Energy Project (CFEP) intends to report all dead birds found in the CFEP (Project) over the entire life of the project as part of the project operations and monitoring efforts. The purpose of this Wildlife Incident Reporting and Handling System (WIRHS) manual is to standardize and describe the actions taken by CFEP personnel in response to wildlife incidents found in the Project. The manual is intended to be working directions for personnel encountering a wildlife incident to fulfill the obligations of CFEP in reporting bird incidents. Note that avian- specific sections of this manual may be supplemented or replaced by standard Novelution Wind, LLC Avian Protection Plan components associated with avian incident reporting and handling requirements.

CFEP POLICY

Employees or subcontractors of CFEP have a responsibility to comply with all environmental laws and regulations. The federal Migratory Bird Treaty Act protects most birds that occur in the Project and the Bald and Golden Eagle Protection Act further protect eagles. Under these federal statutes it is illegal to take or collect birds that may be found in the Project.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) (16 USC 703-712) is the cornerstone of migratory bird conservation and protection in the United States. The MBTA implements four treaties that provide for international protection of migratory birds. It is a strict liability statute wherein proof of intent is not an element of a "taking" violation. Wording is clear that most actions resulting in a taking or possession (permanent or temporary) of a protected species can be a violation regardless of intent.

Statutory Prohibition:

> Specifically, the MBTA states: “Unless and except as permitted by regulations...it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess...any migratory bird, any part, nest, or egg of any such bird...(The Act) prohibits the taking, killing possession, transportation, and importation of migratory birds, their eggs, parts, and nests, expect when specifically authorized by the Department of the Interior." The word "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect."

The MBTA offers protection of 836 species of migratory birds (listed in 50 CFR 10.13), including waterfowl, shorebirds, seabirds, wading birds, raptors, and passerines. Generally speaking, the MBTA protects all birds in the U.S. except gallinaceous (upland game) birds, rock pigeons, Eurasian collared doves, European starlings, and house sparrows.

Bald and Golden Eagle Protection Act

In June 1940, Congress signed into law the Bald and Golden Eagle Protection Act (BGEPA) (16

USC 668-688d). This law afforded additional protection to the bald and golden eagle. Penalties for violations of the BGEPA are up to $250,000 and/or 2 years imprisonment for a felony (violations are defined as a felony), with fines doubled for organizations.

Statutory Prohibition:

> Specifically, the BGEPA states: "Whoever, with the United States or any place subject to the jurisdiction thereof, without being permitted to do so as provided...shall knowingly or with wanton disregard for the consequences of his act take, possess, transport...at any time or in any manner, any bald or golden eagle, alive or dead, or any part, nest or egg thereof shall be fined...that the commission of each taking or other act prohibited by this section, with respect to a bald or golden eagle, shall constitute a separate violation of this section."

Endangered Species Act

In 1973 the Endangered Species Act (ESA) (16 USC 1513-1543) was passed to protect endangered and threatened species and to provide a means to conserve their ecosystems. Under the ESA, Federal agencies are directed to utilize their authorities to conserve listed species, as well as "Candidate" species that may be listed in the near future, and make sure that federal agencies' actions do not jeopardize the continued existence of these species. As with the MBTA and the BGEPA, the ESA as amended prohibits the taking of species listed under the act as threatened or endangered.

CFEP WIRHS will be active for the life of the Project. It is recognized that bats are generally not protected by federal law unless listed as a threatened or endangered species; however, it is the policy of CFEP to treat bat incidences the same as avian incidences and include them in the WIRHS. Further, it is the policy of CFEP to comply with all conditions of the Industrial Siting Council permit for the Project including implementing a monitoring study of the wind project and convening a Technical Advisory Committee (TAC) that will oversee the monitoring study. The objective of this policy is to insure that the best available information about avian and bat incidents found in the wind project is recorded and the proper authorities are notified.

CFEP is committed to providing a secure environment for all natural inhabitants of the Project site. The possession, transfer or tampering with any avian or bat species (alive or dead) at any time is strictly prohibited. The WIRHS is designed to provide a means of recording and collecting avian and bat species found in the Project to increase the understanding of wind turbine and wildlife interactions. CFEP maintains an ongoing commitment to investigate wildlife incidents involving company facilities and to work cooperatively with federal and state agencies in an effort to prevent and mitigate future bird and wildlife fatalities. It is the responsibility of CFEP employees and subcontractors to report all avian and wildlife incidents to your immediate supervisor.

WILDLIFE INCIDENT REPORTING
WIND PROJECT PERSONNEL PROCEDURES

The following procedures are to be followed when Project personnel or others discover an avian or bat fatality or injury while on site. These procedures are intended to be in place for the life of the Project and are independent of any monitoring studies. Implementation of this WIRHS will be part of the Project staff training program.

WHEN TO USE THE WIRHS - WHAT CONSTITUTES A REPORTABLE INCIDENT?

For the purposes of this reporting system, *incident* is a general term that refers to any bird or bat, or evidence thereof, that is found either dead or injured within the wind project. Note that an incident may include an injured animal and does not necessary indicate death as in a carcass or fatality.

An intact carcass, carcass parts, bones, or scattered feathers or an injured bird or bat are all considered reportable incidences. Report all such discoveries even if you are uncertain if the carcass or parts are associated with a wind project structure.

A ***fatality*** is any find where death occurred, such as a carcass, carcass parts, bones, or feather spot. An ***injury*** or injured animal is any bird or bat with an apparent injury, or that exhibits signs of distress to the point where it cannot move under normal means or does not display normal escape or defense behavior.

Prior to assuming a bird or bat is injured, it should be observed to determine if it can not or does not display normal behaviors. For example, raptors will occasionally walk on the ground, especially if they have captured a prey item. Raptors also "mantle" or hold their wings out and down covering a prey item. These types of behaviors may make the wings appear broken or the animal injured. Identification of specific behaviors typical to bird life cycles and distress behaviors will be part of the Project staff-training program.

Note: Any incident involving a threatened or endangered species or a bald or golden eagle must be reported to USFWS within 24 hours of identification. See project personnel listing for contact information.

MATERIALS NEEDED TO RECOVER/REPORT AN INCIDENT

The supplies needed for this WIRHS will be contained in a “run-kit” available on site at the Operations and Maintenance Office. The run-kit includes the following items:

A copy of this WIRHS
Wildlife Incident Report Forms
Project Personnel Listing and Contact Information
Sharpie, Pencils, Pens
3x5 cards
Ziploc freezer storage bags – quart size, gallon size
Zip ties
Garbage bags
Disposable gloves

Camera
Large forceps
Flagging
Dark cloth bag or towel
Leather gloves for handling injured large birds
Animal carrier suitable for transporting injured birds
Shoebox with a soft cloth and air holes punched for transporting injured bats

INCIDENT RECOVERY AND REPORTING PROCEDURES:

If an animal is found or if you determine a bird/bat is injured, the following procedures should be followed:

1. If the incident discovered is an injured bird, initially move to a distance far enough away that it is not visibly disturbed or uneasy due to your presence. Follow the procedures for reporting and care of injured wildlife found below.

   If the incident discovered is a fatality or injured bat the following procedures apply.

2. Initially, leave the subject animal in place. A flag may be used to mark it's location for easy finding while specific data are being recorded. If it is a fatality, it is best to leave the subject animal in place until all the data are recorded. It is recommended that any flagging be marked with the date, time and initials of the recorder.

3. Prepare a Wildlife Incident Report Form. The form and instructions for filling out the form are provided below.

4. Prepare a 3x5 card label that includes the exact date and time of the find and the observer's initials that are recorded on the Wildlife Incident Report Form. Use a Sharpie to record information on the label and write in large letters. This label is critical to correlating the carcass and photographs back to the data forms in the future and will be bagged and stored with the carcass.

5. Photograph the incident as it was found in the field. Take at least two pictures: a close up shot of the animal as it lays in the field and a broader view of the animal (marked by a flag) with the road, turbines, or other local features in the view. For the close up picture lay the 3x5 card label marked with the date, time and initials of the recorder facing up next to the carcass so that it appears in the picture.

6. Following completion of the report form and photographs, the fatality should be collected. In the case of a scavenged mortality or feather spot it is important to collect all parts so that it is not encountered and counted again at a later date. The fatality or parts should be bagged in a Ziploc freezer bag or garbage bag in the case of large birds. The 3x5 card label should be included in a second Ziploc bag with the bag holding the actual animal (double bagged). It is advisable to use plastic disposable gloves to collect casualties for hygiene and potential disease considerations.

   Injured bats (that can not fly) are also to be collected. Due to disease considerations

and safety, injured bats should be collected with long forceps using disposable gloves. Confine the injured bat in a shoebox with a lid, punched air holds, and a soft cloth. The monitoring study Field Coordinator (see list of contacts) should be notified immediately and will be responsible for euthanizing injured bats.

7. Report the find to the Project Environmental Program Manager or in their absence the monitoring study Field Coordinator within 24 hours. As soon as possible after the fatality is collected it should be stored in the site freezer and an entry completed in the freezer logbook. Follow the instructions on the freezer logbook for logging fatalities into the freezer. Include the 3x5 card label double bagged with the fatality in the freezer.

   Any incident involving a State or Federally listed threatened or endangered species or a bald or golden eagle must be reported to the USFWS within 24 hours of identification. The Program Manager or the CFEP Avian Protection Manager will report these finds to the agency verbally. See project personnel listing for contact information.

INJURED WILDLIFE –
PROCEDURES FOR REPORTING AND CARE

The following procedures apply to injured birds:

Fill out a Wildlife Incident Report Form as for a fatality, but first, the primary objective is to provide immediate care for the injured animal. Capture the injured bird by placing a dark cloth or towel over the animal. By removing its ability to see, birds generally calm down and are more easily handled. Place the bird in a box that has a towel or other material for the animal to hide under or grasp on to.

While capturing the animal, assess the injury so you'll know what to report to the Program Manager or a Project Biologist or the wildlife rehabilitator – Frank and Lois Layton in Casper (see contact list below). As soon as possible after capture, contact the GWF Environmental Program Manager or the PacifiCorp Avian Protection Manager (see contact list) about the find and for further instruction.

Minimize additional stress to the animal by keeping it cool if it is a hot day or keeping it slightly warm if it is a cool day. Placing the box in a darkened room with closed doors may be helpful in minimizing stress while the appropriate arrangements are made for care.

If the injured bird is a Federally listed species, the GWF Environmental Program Manager or PacifiCorp Avian Protection Program Manager will notify the appropriate U.S. Fish and Wildlife representative (see contact list). If the injured animal is found after normal weekday office hours, leave a message (if possible) and report it again the next available working day.

If you can't reach the Program Manager or a project biologist, phone the Laramie Raptor Refuge and request further instruction (see contact list). The rehabilitation center is required to report any injured raptor to the USFWS within 24 hours. If the injured bird is an eagle or has been gunshot, it should also be reported to the Wyoming Game and Fish Department and U.S. Fish & Wildlife Service law enforcement. Describe the injury to the rehabilitation center and they will determine if it should go directly to a veterinary clinic.

Deliver the animal to the specified location. If applicable, request that the veterinary clinic make arrangements to deliver the bird to the designated rehabilitation center following treatment. PacifiCorp will pay for all veterinary bills.

WILDLIFE INCIDENT REPORT FORM INSTRUCTIONS

SECTION 1 – DISCOVERY DATA

Date and Time: Record the date and time when the incident was found and the report is completed.

Name(s): Record the name(s) of the person(s) who made the discovery and filled out the report form.

SECTION 2 – INCIDENT INFORMATION & OBSERVATIONAL DATA

Fatality/Injury: Circle the appropriate choice.

Condition: Circle appropriate description. *Complete* is an intact carcass or carcass that appears complete with no obvious signs of scavenging. *Dismembered* is a carcass with appendages missing or amputated from body. *Feathers* is an incident where only feathers were found, a feather spot.

Field Notes and Physical condition: This section is for recording any field notes or observations specific to the incident. For example, describe observations about the incident at the time it was found. Some good observations to include are whether the carcass appears fresh or is old and desiccated, whether it was infested with insects, whether maggots were present, the condition of the eyes – dried and sunken versus moist and round, whether all appendages were present or if one or more were missing (e.g., missing right wing). Notes recorded in this section are helpful in estimating the time since death.

Estimated Time Since Death: Indicate the approximate number of days since the time of death based on your best judgment. Very fresh carcasses, which may be only a few hours old, will generally have no insect infestations and eyes may be round and wet appearing. Insect infestations can occur relatively quickly, especially in warm weather, and even carcasses less than 24 hours old may have flies or beetles on them. The presence of fly larvae (maggots) would indicate a carcass is a few days (generally >24 hours) to a week old. A dried carcass with all the flesh removed is likely to be greater than 14 days and if bones are visible it could be over 30 days old. In cold weather, carcasses will appear fresh for longer time periods and may not experience insect scavenging.

SECTION 3 – WILDLIFE IDENTIFICATION

Species: If known, record the species. If unknown, record “unidentified” or “unknown”.

Field Marks used: Include in this section any notes or information such as identification marks that helped you determine the species of the bird or bat. If the species was unknown but you have an educated guess, or you know the bird was a raptor for example but don’t know the species, include it here.

Photos: Indicate whether photos were taken and if so how many.

SECTION 4 – LOCATION OF FIND

Structure: Record the nearest turbine or met tower number. If no wind project facility is nearby indicate that the incident was found on site and the approximate location.

Distance from Structure: Record the approximate distance to the structure from where the incident was found. Pacing is a good means of estimating distance.

Direction from Structure: Record the general direction such as N (north), NE (northeast), E (east) etc. from the structure to where the incident was found. If the direction is unknown indicate in the Location Remarks (below) if the incident was on the roadside or non-road side from the turbine.

Location Remarks: Include in this section any other information about the incident location that might be helpful such as found on the road, found on the turbine pad, found directly under guy wires, power lines overhead, etc.

SECTION 5 – DISPOSITION AND PERSONNEL CONTACT

Disposition of the Incident: For this study, incidences located by Project personnel are to be collected. The disposition of the find in most cases will be that it is stored in the site freezer. In cases of injured birds (see procedure below) the disposition may be the wildlife rehabilitator or if an eagle or threatened or endangered species is found, the incident will be turned over to the USFWS.

Name of Field Personnel/Manager Notified: Record the name, date and time that the Project Environmental Program Manager or the monitoring study Field Coordinator was notified about the find.

WILDLIFE INCIDENT REPORT FORM

SECTION 1 - DISCOVERY DATA

Date: _____ Time: _____
Name(s): _____

SECTION 2 - INCIDENT INFORMATION & OBSERVATIONAL DATA

Fatality / Injury Condition: Complete / Dismembered / Feathers

Field Notes and physical condition of the incident at time of discovery:
_____
_____
_____

Estimated Time Since Death or Injury (days): _____ (<1, <4, <7, <14, <30, >30)

SECTION 3 - WILDLIFE IDENTIFICATION

Species: _____ Field marks used:_____
_____

Photos: _____

SECTION 4 - LOCATION OF FIND

Structure: _____

Approximate Distance from Structure: _____
Approximate Direction from Structure: _____ (N, NE, E, SE, etc.)

Location Remarks**:**
_____
_____
_____

SECTION 5 - DISPOSITION AND PERSONNEL CONTACT

Disposition of the Incident: _____

Name of Field Personnel/Manager(s) notified: _____
Date and Time of Call: _____

INJURED WILDLIFE –
PROCEDURES FOR REPORTING AND CARE

The following procedures apply to injured birds:

Fill out a Wildlife Incident Report Form as for a fatality, but first, the primary objective is to provide immediate care for the injured animal. Capture the injured bird by placing a dark cloth or towel over the animal. By removing its ability to see, birds generally calm down and are more easily handled. Place the bird in a box that has a towel or other material for the animal to hide under or grasp on to.

While capturing the animal, assess the injury so you'll know what to report to the Program Manager or a Project Biologist or the wildlife rehabilitator – TBA (see contact list below). As soon as possible after capture, contact the Project Environmental Program Manager or the CFEP Avian Protection Manager (see contact list) about the find and for further instruction.

Minimize additional stress to the animal by keeping it cool if it is a hot day or keeping it slightly warm if it is a cool day. Placing the box in a darkened room with closed doors may be helpful in minimizing stress while the appropriate arrangements are made for care.

If the injured bird is a Federally listed species, the Project Environmental Program Manager or CFEP Avian Protection Program Manager will notify the appropriate U.S. Fish and Wildlife representative (see contact list). If the injured animal is found after normal weekday office hours, leave a message (if possible) and report it again the next available working day.

If you can't reach the Program Manager or a project biologist, phone the wildlife rehabilitator and request further instruction (see contact list). The rehabilitation center is required to report any injured raptor to the USFWS within 24 hours. If the injured bird is an eagle or has been gun shot, it should also be reported to the Wyoming Game and Fish Department and U.S. Fish & Wildlife Service law enforcement. Describe the injury to the rehabilitation center and they will determine if it should go directly to a veterinary clinic.

Deliver the animal to the specified location. If applicable, request that the veterinary clinic make arrangements to deliver the bird to the designated rehabilitation center following treatment. CFEP will pay for all veterinary bills.

PROJECT PERSONNEL LISTING AND CONTACT INFORMATION

CFEP Program Manager – TBA

Project Manager – Monitoring Studies
TBA

CFEP Avian Protection Manager – TBA

WEST Project Biologists - TBA

WEST Field Coordinator – Monitoring Studies
TBA

Wildlife Rehabilitation Center
Laramie Raptor Refuge
28 Corthell St.
Laramie, WY 82070
Phone: 307-721-9841

Agencies:

U.S. Fish and Wildlife Service

Resident Agent in Charge –To be determined
5353 Yellowstone Rd
Suite 308A
Cheyenne, WY 82009
Phone:

Wyoming Game and Fish Department

Resident Agent in Charge – To be determined
5400 Bishop Blvd.
Cheyenne, WY 82006
Phone:

Wildlife Monitoring Data Forms

CASUALTY INFORMATION FORM - FIELD FORM **Chugwater Flats Energy Project**

DATE:_____ TIME:_____ OBSERVER: _____

FOUND DURING (check one): SCHEDULED CARCASS SEARCH_____ INCIDENTAL FIND _____

COLLECTED? Yes No SAMPLE NO.:_____ FILM ROLL/PHOTO NO: _____

PLOT TYPE (circle one): turbine met tower PLOT NO.: _____

LOCATION IF NOT ON PLOT _____

UTM COORDINATES (NAD 27) _____ _____

HABITAT: _____

SPECIES: _____ SEX (circle):M F U AGE (circle): A J U

CONDITION (circle one): injured intact scavenged dismembered feather spot other

DISTANCE & BEARING FROM NEAREST TOWER/POLE:

DESCRIPTION	DISTANCE (m)	BEARING (degrees)
Part 1 _____	_____	_____
Part 2 _____	_____	_____
Part 3 _____	_____	_____

Other _____

Comments:

ESTIMATED TIME SINCE DEATH/INJURY: _____

WEATHER HISTORY [If carcass is estimated to be less than one week old, circle any of the following weather conditions that occurred at or before the estimated time of death/incident]:

clear calm fog cloudy rain snow storm gusty wind violent storm blizzard

WEATHER NOTES:

GENERAL COMMENTS: (e.g. behavior observed if bird is injured; details of carcass - body parts missing, injuries, number of feathers in feather spot; indications of cause of death, field marks for identification, USFWS band no., etc.)

Agency Contact

USFWS Contact: Date:_____ Time: _____ Recovery Approval: yes no

Contact Person(s):

Comments:

Disposition of Find _____

Transported to freezer _____ Date:_____ Time:_____

Release to USFWS: Person: _____ Date: _____ Time: _____

Comments:

Appendix I
Artifact Finding Instructions

Artifact Finding at Chugwater Flats Site

In the past, people have found certain artifacts and fossils in the area where they are working, so there is a remote possibility of finding artifacts or fossils on this construction site. You need to be informed and prepared to take the necessary measures if these items are discovered on site. Known cultural resource locations eligible for listing on the National Register of Historic Places (NHRP) at this site should be already marked on construction drawings as "no entry" areas and be flagged in the field, if necessary.

If you are to come across anything that you may believe to be an artifact or fossil you should immediately stop what you are doing and notify your supervisor. The items should not be disturbed or tampered with until Project Management has been informed of the find. After the proper people have been informed and they have provided their evaluation of the situation, then the proper actions can be taken.

A few different items that you may come across on the site are arrowheads, pottery, pottery fragments, fossils, coins and clothing, and/or human remains. These items may have significant historical value and may warrant preservation for the state heritage and cultural histories, or in the case of human remains, may be associated with criminal activity.

Take these steps in case an artifact is found:

1. Stop what you are doing.
2. Notify your supervisor.
3. Supervisor will notify CFEP Project Management.
4. In the case of human remains being discovered, the appropriate County Coroner's office will be notified:
   Platte County: (307) TBD
   Goshen County: (307) TBD.
5. CFEP will inform the Coroner of where and what was found.
6. Actions to be taken by CFEP and subcontractors will be determined based on recommendations by the Coroner.

I have read and understand the material presented before me,

Name: _____
Company: _____
Date: _____

Appendix J
Avian and Bat Protection Plan

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STATEMENT OF PURPOSE AND PHILOSOPHY

Novelution Wind, LLC and their subsidiary company Chugwater Flats Energy Project (CFEP) are committed to siting, constructing, and operating all their facilities in an environmentally responsible and sustainable manner. This environmental responsibility includes conserving and minimizing impacts to natural resources including wildlife and the habitat they use.

Although wind farms utilize a renewable energy source (wind) there are environmental consequences resulting from its construction and operation. This Avian and Bat Protection Plan outlines various processes that CFEP will employ to (1) comply with state and federal wildlife laws and regulations and (2) to ensure that any impacts on wildlife resources are identified and that safeguards are in place to address any impacts that result from the operation of the wind farm.

State and federal laws protect all species of native birds in and around the CFEP wind farm project. Interactions of birds with generating facilities, transmission and distribution lines, substations, and other structures and equipment are potentially harmful or fatal to birds. In addition, bird interactions can result in outages, violations of bird protection laws, grass and forest fires, and raise concerns by employees, resource agencies, and our customers.

Bats have the potential to be impacted by these same facilities. Significant impacts on bats may also have regulatory ramifications. Therefore impacts on birds, bats, and other wildlife that occur as a result of CFEP are important to Novelution Wind, LLC from both a regulatory priority and natural resource conservation priority.

INTRODUCTION

CFEP Phase I is a 174-megawatt (MW) wind farm approximately 5 miles east of Chugwater, Wyoming. The project is located on an area known as Chugwater Flats in Platte and Goshen Counties and includes 116 1.5-MW GE wind turbines. The wind turbines are approximately 262.5 feet (80 m) high, supported by tubular steel poles, freestanding without the support of guy wires, and nighttime lighting will be in accordance with Federal Aviation Administration (FAA) guidelines.

As CFEP strives to meet the President's recommendations for American energy independence and the increasing demand for 'green power', we constantly look for ways to minimize our impacts on the environment. It is the responsibility of every employee and contractor to adhere to all federal, state and local laws that were designed to protect our environment. The Migratory Bird Treaty Act of 1918 (MBTA), administered by the US Fish and Wildlife Service (USFWS), is the

driving legislation that provides regulatory protection of birds throughout Wyoming as well as the entire United States. The MBTA prohibits the “take” of essentially all birds (except pigeons, English sparrows and European starlings). “Take” is a broad term that includes killing, harming or harassing birds, bird nests, eggs or young. The MBTA is a strict liability statute which means that proof of intent is not required in the prosecution of a ‘taking’ violation. Wind farms such as CFEP have the potential to incur fines from accidentally or incidentally ‘taking’ birds during their normal daily operations.

In addition, the Bald and Golden Eagle Protection Act (BGEPA) and Endangered Species Act (ESA) provide additional protection for bald and golden eagles and federally listed birds, bats and other wildlife species, respectively.

CFEP has prepared this Avian and Bat Protection Plan based on the guidelines set forth in “Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006” (APLIC, 2006). The Avian and Bat Protection Plan is designed to help the company and its employees comply with requirements of wildlife protection laws, manage wildlife interactions with wind turbines and associated facilities, reduce regulatory risk, and conserve wildlife resources in the area.

This Avian and Bat Protection Plan is divided into nine elements:

- Training
- Permit compliance
- Engineering and construction design standards
- Nest management
- Avian and bat reporting system
- Mortality reduction measures
- Quality control
- Public awareness
- Key resources

KEY TERMS

Below are several terms and their definitions that are used throughout this document. These will be helpful when reading this document.

Avian – Relating to or characteristic of birds.

Depredation – Damage or loss.

Migratory birds – All birds listed in 50 CFR 10.13. This includes 836 species. Generally speaking, in the United States this means all birds except English sparrows, European starlings, and common pigeons (rock doves).
Raptor – A bird of prey (e.g., hawk, eagle, osprey, vulture).

TRAINING

CFEP employees and contractor managers will receive Migratory Bird and Bat Training from Environment, Health, and Safety (EHS) Field Services instructors or a refresher course (usually via computer based training [CBT] or instructional video/film) each year. The CBT information is also available in hardcopy for those employees who do not have access to a computer. Instructor led training is required a minimum of every three years. Additional training materials include a flowchart (Appendix A), a Bird or Bat Incident Report Form (Appendix B) and an information handout (Appendix C).

In addition to formal training, CFEP will have a poster (Appendix D) displayed in prominent places. The purpose of this poster is to remind employees of their personal responsibility and the corporation's responsibility in complying with migratory bird and other wildlife related laws. Posters also list a phone number to call for assistance when encountering avian or bat issues.

PERMIT COMPLIANCE

CFEP will apply for permits from Wyoming Game and Fish Department (WGFD) and the USFWS for the operation of CFEP. These permits allow for the handling of dead or injured birds and the relocation of small, active nests of non-endangered bird species when the nest location poses a risk to birds and/or to the uninterrupted generation of electricity. Disposal of small, inactive bird nests are also allowed. In addition, employees may temporarily possess a dead bird to bury it or transport an injured bird to a veterinarian or rehabilitator. CFEP personnel are also authorized to use non-lethal control techniques such as perch guards, plastic spikes, etc. to discourage birds from nesting or roosting in undesirable areas. Permits require that CFEP keep records of bird incidents throughout the year and provide this data annually to the USFWS.

Permit compliance as it relates to operation

Post-construction avian and bat mortality monitoring will be completed for CFEP after the project becomes operational in accordance with USFWS and WGFD recommendations. Pedestrian searches for carcasses along and within turbine strings will be conducted during breeding and migration seasons per USFWS and WGFD recommendations following commencement of turbine operation. Surveys will be conducted in May and June (to capture the breeding season and spring migration) and in September and October (to capture the fall migration). To ensure complete coverage around the turbines, searchers will walk transects spaced 32 ft. apart with the furthest transect 207 ft. away from the turbines. Searchers check for bird and bat carcasses on both sides of the transect line. Any avian or bat carcass observed during the searches will have the following

information recorded:

- Species
- Sex/age
- Date, time, and weather conditions
- Location (GPS coordinates [Section/Township/Range and UTM coordinates], specific string, and turbine (document which string and turbine was being surveyed for when the carcass was located)
- Distance to nearest individual turbine
- Carcass condition (intact, scavenged, feather pile, etc.)

Because the rate of detection of carcasses is highly variable (Morrison 2002) and can be influenced by factors such as distance from the turbine and vegetative cover (Kerns et al. 2005), searcher efficiency tests will be incorporated in the study design to correct for unintended bias. Each observer will be tested at least once during every field visit. A random number (0-5) of carcasses will be placed at randomly selected points along a randomly selected transect (Kerns et al. 2005). From these data, detection rate will be calculated for individual observers and mortality estimates can then be corrected.

Scavengers can be another factor biasing carcass search results (Morrison 2002). The length of time between the mortality event and the carcass search, size and color of the carcass, vegetative cover type, weather patterns (especially wind), and random scavenger population fluctuations can all contribute to varying levels of carcass removal by scavengers that can potentially reduce mortality estimates (California Energy Commission and California Department of Fish and Game 2007; Morrison 2002; Kerns et al. 2005). During each visit, biologists will place carcasses of varying size and conspicuousness at randomly selected locations within the sampling area. Carcasses will be checked daily for the duration of each site visit (typically 2-3 days in duration) to determine presence or absence of the carcass. From these data, the carcass removal rate will be calculated and mortality estimates will be corrected. The consulting company carrying out these post-construction searches has obtained scavenger permits specifically for these post construction mortality studies. These permits are separate from the long-term operational permits held by CFEP and discussed above.

Upon completion of surveys, an annual report will be submitted to the Western Area Power Authority (Western), USFWS, and WGFD by April 1 of each year. After the suggested post-construction monitoring, the survey results will be reviewed and further evaluated. Part of this evaluation will be to review mortality rates associated with other wind farm projects in Wyoming and the inter-mountain West. If unacceptable avian mortality occurs as determined by Western in consultation with USFWS and coordination with WGFD, mitigation will be

developed in accordance with current best management practices. All monitoring efforts will be consistently reviewed to determine if any mitigation or corrective action is warranted to decrease mortality rates.

Long-term compliance

CFEP's environmental staff shall provide guidance to employees and contractors on the proper handling of encounters with birds and their nests. Additionally, CFEP's environmental staff shall assess bird interactions with wind facility operations to detect high interaction areas, high interaction time periods, specific problem turbines, and other trends or observations. These assessments will be communicated to CFEP Management as well as WGFD and USFWS. Seasonal restrictions on turbine operations (i.e. specific problem turbines) may be implemented if bird or bat mortalities are found to be significantly higher than the industry average, are biologically significant, or if listed species are being impacted. The operational restriction framework, such as dates, times, etc. will be done in close consultation with WGFD and USFWS.

Regulatory References

Migratory Bird Treaty Act of 1918 (as amended in 1936, 1974, 1978, 1989)
50 CFR 21.41 (permit)
50 CFR 13.46 (record keeping statute)
50 CFR 13.47 (authorizes federal inspection of records)
Bald and Golden Eagle Protection Act of 1940 (as amended in 1940, 1959, 1962, 1972, 1978)
Endangered Species Act of 1973 (as amended in 1973)

ENGINEERING AND CONSTRUCTION DESIGN STANDARDS FOR AVIAN SAFE WIND FARM FACILITIES

CFEP will use state of the art, best available technology in both turbine and support structure design. This includes the use of GE wind turbine generators and tubular steel support structures. All electrical feeder lines transporting electricity from the turbine generator sites to the substation are underground. In addition, the transmission line from CFEP substation(s) to the tie in with Western is yet to be determined and will be co-located with other transmission lines where possible. Avian safe design considerations will be used in the transmission line design. These design features include single pole, vertical construction and routes that avoid significant migration paths of migratory birds. Thus, we believe the risk of avian electrocutions or collisions from this line should be minimal.

See "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006" (Appendix E) for avian-safe utility line and pole designs.

NEST MANAGEMENT

There is the potential for bird nests (both small, passerine nests and large raptor nests) to be present on the Project site and associated transmission line right-of-way. It is the mission of CFEP to both protect birds from electrocutions/strikes as well as provide an uninterrupted and low-cost supply of electricity to our customer(s).

Passerine nests

Some birds may nest in substations, transformer banks, graveled areas, or on the ground. Some of these nests can potentially be problematic. Servicing energized equipment in the presence of bird nests can be a danger to CFEP technicians as well as to the birds. When the service or maintenance can be performed at a later date (after the young have fledged) our technicians will reschedule the work. If the work must be performed immediately, the technicians will be trained to relocate these nests as close to the original nest site as practical. Small inactive nests (no eggs or chicks present) that may compromise safety or reliability may be removed and discarded.

Raptors

Due to the configuration of the wind turbines and transmission line from CFEP to the Western substation, raptor nests are not anticipated on these structures. However, some raptors in the West may nest on the ground. If raptor nests are discovered on or near the CFEP site or transmission line right-of-way, a CFEP biologist will consult with the USFWS Ecological Services to determine what course of action must be taken to protect the bird. CFEP will avoid disturbing such an active nest to the extent practicable until appropriate consultation with USFWS occurs and appropriate permits are in place (if applicable).

AVIAN AND BAT REPORTING SYSTEM

When an employee or contractor encounters a bird or bat (dead or live) or bird nest (active or inactive) that poses a risk to the bird, a CFEP facility, and/or electric system reliability the employee should call the CFEP office to speak with staff biologists to obtain information and recommendations on the appropriate course of action. The employee will be asked a series of questions that will help to develop the recommendations.

They are not required to identify the bird or bat species. It is extremely helpful if a digital photo (digital camera or cell phone camera) can be taken of the bird to aid in taxonomic identification. **Employees and contractors always have the option to call the CFEP staff biologists for guidance on any bird or bat**

issue.

When a field crew encounters a bird incident they must document it on a reporting form (Appendix B) along with comments that will shed light on the situation. Completed forms are scanned/e-mailed, mailed, or faxed to Corporate EHS Biological Services for further analysis and for annual reports. Reports are maintained for a minimum of five years as required by federal law.
In the case of injured wildlife, the technician in the field should use extreme caution and not handle the injured specimen. This is especially the case for injured bats. For injured wildlife, the technician in the field should notify his/her supervisor and the local game warden should be called to handle the injured specimen.

Also, some birds can become very territorial around their nests. If an active nest is found and the parents are showing aggressive behavior, leave the area, notify the supervisor and if the nest is not compromising safety or operations, leave the nest undisturbed until the chicks are fledged. If the nest area must be accessed, do so in a way that produces minimal disturbance. Again, the biologist on staff will provide specific guidance for the situation.

The CFEP reporting process is documented in a flowchart (Appendix A). Each employee receives detailed instruction on the process when trained and receives a copy of the flowchart. You may call a CFEP staff biologist any time you need assistance.

MORTALITY REDUCTION MEASURES

Avian and Bat Mortality Reduction Measures

Facility Siting

The presence and proximity to significant wildlife resources was a factor in the original siting of CFEP. The site does not impact significant raptor habitat, is not in an identified sage grouse core area and does not impede a significant migratory corridor. Also, a transmission line is already present within the Project so no new impacts to wildlife resources have resulted from the transmission line.

Wind Turbine Design

The GE 1.5 MW turbines are state of the art, low RPM wind turbines. These have been designed to operate efficiently at low RPMs in order to minimize avian and bat strikes thus reducing potential mortalities.

Transmission Line Design

A high voltage transmission line currently runs through the project site to two existing Western transmission lines. The relative visibility of this line is enhanced by the presence of two other transmission lines just north of the Project site. The transmission line is supported by large steel structures and utilizes horizontal and vertical construction. Significant vertical and horizontal distance is maintained (well exceeding the 45" vertical standard and 60" horizontal standard) between the conductors and ground due to the required insulating distance for high voltage lines. Therefore, no phase to phase or phase to ground contact with raptors is expected. No nesting by raptors has been observed or is expected. Some perching opportunities may exist on the top of the structures but this should not pose a significant risk to raptors.

Other Reduction Measures

Large Nest Relocation

Distribution poles and transmission towers near such habitats as water sources, jackrabbit habitat, or prairie dog towns can provide excellent nesting and feeding sites for large birds such as hawks and ravens. Nests on energized poles and towers can interrupt electrical service and pose a threat to both nesting adult birds and their offspring. Although not expected at the CFEP site, if raptor nests are found on or near CFEP facilities, a CFEP biologist will consult with the USFWS Ecological Services to determine what must be done.

Marking Lines

Marking electric conductors and neutral/static wires has been shown to significantly reduce the number of bird collisions. There are many bird marking devices available (swan flight diverters, orange spheres, Fireflys, etc.) and each has its own application and effectiveness. Marking devices may be retrofitted to existing lines in high bird use areas and will be installed on new lines where the potential for bird collisions is present. If significant bird mortalities are discovered on this right-of-way, CFEP will coordinate with the other transmission line owners (Western) and the USFWS to determine if marking these lines are warranted.

Avian Safe Engineering Standards

Avian safe engineering standards have been incorporated into CFEP engineering standards following the Edison Electric Publication "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006" (APLIC, 2006) (Appendix E). Along with these standards, are internal criteria that are used by field engineers to assist in determining if avian safe engineering standards need

to be incorporated into the particular line being planned. CFEP staff environmental scientists also assist field engineers with evaluating the applicability of using avian safe standards for both rebuilding existing lines and the siting/design of new lines.

Bat Mortality Reduction Measures

The cause of bat mortalities associated with wind farms is not well understood. However, a number of studies have documented that bat mortalities can occur at a higher rate during certain periods of the year and with certain species. For example, Pasqualetti et al (2004) reported that about 90 percent of bat fatalities are migratory species, with most bat fatalities occurring in late summer and fall. The cause for this trend is not well understood and as a result, universally standard management and mitigation measures have not been developed for bats. For the CFEP project, post-construction bat mortality monitoring will be conducted as recommended by USFWS and WGFD to document bat mortality. In general, the project area is not expected to represent high quality bat habitat. However, the results of the bat monitoring will be used to confirm that bat mortality rates do not exceed national averages. In the unlikely event that higher than average bat mortality rates are observed, CFEP will work with WGFD and the USFWS to evaluate additional mitigation measures that could be implemented to reduce bat mortality rates.

QUALITY CONTROL

As mentioned in Permit Compliance Section, post-construction avian and bat mortality monitoring will be conducted as recommended by USFWS and WGFD. In order to accurately assess bird and bat mortalities pedestrian searches for carcasses will be conducted along specifically located transects and at specific times of the year. Because the rate of detection of carcasses is highly variable (Morrison 2002) and can be influenced by factors such as distance from the turbine and vegetative cover (Kerns et al. 2005), searcher efficiency tests will be incorporated into the study design to correct for unintended bias. Each observer will be tested at least once during every field visit. A random number (0-4) of carcasses will be placed at randomly selected points along a randomly selected transect (Kerns et al. 2005). From these data, a detection rate will be calculated for individual observers and mortality estimates can then be corrected.

Scavengers can be another factor biasing carcass search results (Morrison 2002). The length of time between the mortality event and the carcass search, size and color of the carcass, vegetative cover type, weather patterns (especially wind) and stochastic scavenger population fluctuations can all contribute to varying levels of carcass removal by scavengers that can potentially reduce mortality estimates (California Energy Commission and California Department of

Fish and Game 2007; Morrison 2002; Kerns et al. 2005). During each visit, biologists will place carcasses of varying size and conspicuousness at randomly selected locations within the sampling area. Carcasses will be checked daily for the duration of each site visit (typically 2-3 days in duration) to determine presence or absence of the carcass. From these data, the carcass removal rate will be calculated and mortality estimates will be corrected.

Other, more long-term quality control measures performed at CFEP include the auditing of the site by CFEP's internal environmental auditing group. This group will audit various aspects of the CFEP Avian & Bat Protection Plan including examining training records; ensuring posters are visible and quizzing employees about their knowledge of bird and bat reporting requirements. This audit may also examine the record keeping of reported bird mortalities. Any audit findings will follow CFEP's audit procedures that include follow-up and corrective action measures.

PUBLIC AWARENESS

As the general public becomes more environmentally aware it is continually important that CFEP operates its facilities in an environmentally responsible manner. This includes siting, engineering, constructing and operating its electric generation system in a manner that minimizes its impact on wildlife. Fatalities or injuries of birds or bats or public displays of indifference toward wildlife by CFEP employees will be not be tolerated by CFEP or the public and could result in negative media coverage and/or regulatory action by the agencies. This is particularly true with high profile raptors such as golden eagles, hawks, and owls. During migratory bird training sessions instructors discuss public awareness issues with CFEP employees. Examples of how to effectively handle high profile bird problems are discussed.

In addition, CFEP will strive to continue to work closely with resource agencies, conservation organizations, the media and the general public on bird and bat conservation projects.

SUMMARY

CFEP management and employees are committed to the tenants of the Avian and Bat Protection Plan. We will strive to:

- Ensure that our operations comply with wildlife laws, regulations, permits, and guidelines.
- Document and record bird and bat mortalities, injuries, and disturbances of active nests.
- Provide information, resources, and training to improve employee and

contractor awareness of our responsibilities to wildlife protection laws and the conservation of wildlife in general.

- Identify sensitive wildlife habitats and bird and bat species that may be impacted by proposed wind power sites.
- Where necessary, use avian-safe engineering and design standards in construction of new and retrofitting of existing wind power sites and associated power lines.
- Assess areas of high bird interactions and implement avian-safe improvements on existing facilities where necessary.
- Conduct or support applied research and participate in industry trade groups to identify and assess wildlife issues related to wind energy development.

KEY RESOURCES

Novelution Wind, LLC
215 First Street
Chugwater, WY 82210
307-422-3346

Laramie Raptor Refuge
28 Corthell Rd
Laramie, WY 82070
(307) 721-9841

United States Fish and Wildlife Service (USFWS)- Law Enforcement

USFWS- Resident Agent in Charge (WY and MT)
P.O. Box 113
Casper, WY 82602-0113
Phone: 307-261-6356

USFWS Special Agent
P.O. Box 570
Laramie, WY 82520
Phone: 307-332-7607

USFWS Special Agent
P.O. Box 516
Cody, WY 82414-9998
Phone: 307-527-7604

USFWS- Wyoming Ecological Services Field Office
5353 Yellowstone Road, Suite 308A
Cheyenne, Wyoming 82009-4178
Phone: 307 772-2374
FAX: 307 772-2358

USFWS- (Region 6- CO, UT, WY, ND, SD, NE, KS)
P.O. Box 25486
D.F.C. Denver CO, 80225
Phone: 303-236-7540

Wyoming Game and Fish Department
5400 Bishop Boulevard
Cheyenne, WY 82006
Phone: (307) 777-4600
FAX - (307) 777-4699

Wyoming Licensed Wildlife Rehabilitators
The Cheyenne Center for Wildlife Rehabilitation
3740 E. Lincolnway
Cheyenne, WY 82001
307-635-4121 (24-hr emergency service)

Wyoming Game and Fish
Wheatland Game Warden
1864 S. Road
Wheatland, WY 82201
Craig Smith 307-322-2067

General Supplies

Nesting platforms, etc.	Zena designs P O Box 137 Odenville , Alabama 35120 Phone: 970-663-3980 http://www.zenadesign.com/index.htm
Perch discouragers	National Transformer Sales, Inc 2613 B Discovery Dr Raleigh, NC 27616 Phone: 919-850-3222
Line Marking devices	Tyco Electronics Energy Division Customer Service Phone 800 327 6996 Fax 800 527 8350 http://www.energy.tycoelectronics.com
Other Avian Protection Products	Wildlife Outage Protectors 37 Appletree Lane, P.O. Box 450 Plumsteadville, PA 18949 Phone: 888-414-2398
Wildlife Removal	Presto X Company 311 Lexington Ave Cheyenne, WY 82007 Local: 307-635-2544

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Morrison, M. 2002. Searcher bias and scavenging rates in bird/wind energy studies. National Research Energy Laboratory, Golden, CO. NREL/SR-500-30876, June 2002. Available at: http://www.nrel.gov/wind/pdfs/30876.pdf

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APPENDIX A. MIGRATORY BIRD PROCESS FLOWSHEET

To be developed in consultation with USFWS and WGFD.

APPENDIX B. BIRD OR BAT INCIDENT REPORT FORM

Nearest Turbine #_____

CFEP BIRD OR BAT INCIDENT REPORT FORM

Observer(s)_____Time:___:___ Date ___/___/___

UTM Coordinates (Obtain from handheld GPS):

Zone_____ Easting_____ Northing_____NAD_____
OR

General Location on the Wind farm _____

INJURY OR MORTALITY OBSERVATION

Carcass type (Bird/Bat) _____ Distance to closest turbine:_____
Carcass condition (intact, scavenged, feather pile, etc.)**:_____**
Species (if you can determine):_____
Age/Sex (if you can determine): _____
Additional Carcass Notes: _____
_____
_____

GENERAL HABITAT DESCRIPTION

Habitat Type: _____(sagebrush, grassland, cropland, etc.)
Vegetation Cover: _____(grass, bare soil, rock, tree, shrub, etc.)
Additional Habitat Notes: _____
_____
_____

HAZARDOUS NEST

Describe situation: _____
_____
_____
_____

DISPOSITION (What you did with the bird, bat, carcass, nest, etc.)

_____
_____
_____

Attach Photo of Bird/Bat then send a copy to De Laviolette at PO Box 172 Chugwater, WY 82210 or email laviolette.de@novelutionwind.com.

Note: Remember to report this incident to your Operations Manager. If you want help identifying the species, call CFEP Main Office and speak to staff biologist: **307-422-3346**

APPENDIX C. MIGRATORY BIRD INFORMATION SHEET

THE MIGRATORY BIRD TREATY ACT MANAGING MIGRATORY BIRDS AND THEIR NESTS IN AND AROUND CFEP

Introduction

Many times our jobs can bring us in contact with birds, their nests, their young and their eggs. Examples of interactions that company employees may encounter are:

- Twigs and sticks from a hawk nest are found on a transmission structure
- During substation inspections a bird nest is found near energized equipment
- A pole is slated for replacement and an active nest with eggs or chicks is discovered on the pole or pole crossarms
- During a wind turbine inspection you discover what appears to be the remains of a migratory bird

HOW THE MIGRATORY BIRD TREATY ACT AFFECTS YOU

The Migratory Bird Treaty Act protects all birds on the CFEP and associated transmission lines with the exception of English (House) Sparrows, starlings, and pigeons. The specific language of the law states, *"The taking, killing, possessing, or transport of migratory birds or bird parts shall be designated as illegal.* (Bird parts are defined as nests, feathers, and eggs). *Violations of the law may result in fines and imprisonment."*

When nests of birds are encountered and disturbed, or may be disturbed, immediately call CFEP main office and ask to speak to staff biologist at **307-422-3346** for assistance and guidelines. Inactive small bird nests (nests without eggs or young birds) can be removed and with no reporting requirements.

Federal law requires CFEP to make immediate notification and/or record and submit an annual report documenting encounters with Migratory Birds.

Take the following actions:

1. **Large Birds:** Immediately call CFEP main office at 1307-422-3346 and report encounters and disturbances with large birds.
2. **Small Birds:** During nesting season, report encounters and disturbances with any bird.

Outages caused by birds and other bird incidents are to be noted. It is critical that you comply with this federal law.

******Regulations forbid the transportation of dead migratory birds and/or bird body parts including feathers.******

APPENDIX C. (continued)

Questions and Answers

Q. What should I do if I encounter and **need to disturb or move** a large bird of prey (raven, eagle, hawk, etc.) or one of their nests?

A. You should immediately contact the site manager and call CFEP main office at **307-422-3346** and report the situation to the staff biologist on call. The staff biologist on call will advise the crew on what action(s) to take in these situations. Note: If you do not disturb or move the bird, nest or young birds, reporting or action is not necessary.

Q. What should I do if I need to relocate a small migratory bird (horned lark, meadowlark, etc.) its nest or it's young during nesting season (April through July)?

A. Carefully relocate the nest to an adjacent area and report the relocation and also the species of bird if known.

Q. What should I do if I encounter and need to disturb a small inactive migratory bird nest (nest without eggs or young)? (Usually will encounter inactive nest outside the nesting season – August through March.)

A. Call CFEP staff biologist at 307-422-3346 for assistance.

Q. What should I do if a bird causes an outage?

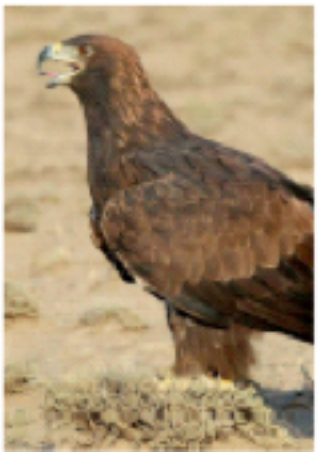
A. Restore power and document on the report form identifying "Birds" as the cause of the outage. If the species of bird is known, document this in the report.

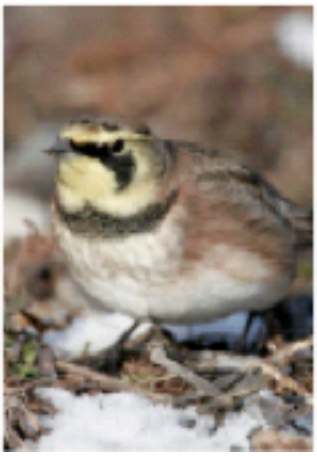
Q. What is a migratory bird?

A. In North America there are 836 species of migratory birds. All birds with the exception of three (English sparrows, European starlings, and pigeons-all are introduced species) are migratory birds.

APPENDIX D. MIGRATORY BIRD POSTER

KNOW THE LAW!


Golden Eagle


Horned Lark

Raven

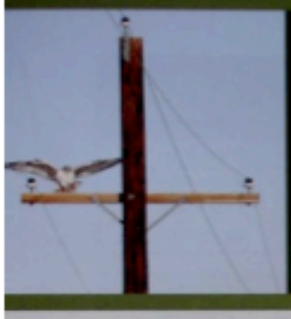
Q. What is special about these birds?

A. Each one of these birds, as well as their nests, eggs, young and even their feathers are PROTECTED UNDER FEDERAL LAW. In fact, every bird in the mountain West region except starlings, English sparrows, Eurasian collared doves and pigeons are protected under Federal and State Law.

If you encounter any of these birds or their nests in your work, follow the guidance and directions issued by your department. If you have any questions or are unsure what to do in any situation, call CFEP main office at any time of day or night:

Phone: 302-422-3346

APPENDIX E. REFERENCE FOR CONSTRUCTION DESIGN STANDARDS FOR AVIAN SAFE UTILITY FACILITIES



CHAPTER 5

Suggested Practices: Power Line Design and Avian Safety

IN THIS CHAPTER

- Introduction to Electrical Systems
- Avian Electrocutions and Power Line Design
- Suggested Practices
- Summary

This chapter address avian electrocution concerns from the engineering perspectives of design, construction, operations, and maintenance. It describes ways of designing new facilities and retrofitting existing facilities to be "avian-safe."

As communities grow, their demand for electricity increases. Additional power lines must be built to supply the additional power. The more miles of power lines there are, the greater the potential for birds to interact with electrical facilities and their inherent hazards.

Biologists and planners must have a basic understanding of power systems, power line designs, and related terminology to identify and implement successful solutions to bird electrocutions. This chapter discusses North American power lines, and the designs and configurations that present avian electrocution risks. For further reference, a glossary of terms is provided in Appendix D.

This 2006 edition of *Suggested Practices* supersedes the recommendations incorporated in the 1996 edition and includes updates based on growing field experience and product performance testing. Despite efforts to present "state-of-the-art" recommendations, users of this manual should be aware that many wildlife protection products have not been tested or rated from an engineering perspective.[20] An IEEE Working Group under project P1656 is writing a guide entitled *Guide for Testing the Electrical, Mechanical, and Durability Performance of Wildlife Protective Devices Installed on Overhead Power Distribution Systems Rated up to 38 kV.* The guide will provide technical guidance for testing wildlife guards and should be available in 2006. Utilities are encouraged to share or publish information regarding avian-safe power line construction and retrofitting experience that can be used to refine future editions of *Suggested Practices.*

[20] However, the recommendations provided in this manual have been field tested by utilities and some results have been published in scientific and engineering journals.