United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Schell Field Office
HC33 Box 33500 (702 N. Industrial Way)
Ely, Nevada 89301-9408
http://www.blm.gov/nv/st/en/fo/ely_field_office.html

In Reply Refer To:
2860 (NVL0200)
NVN-84148, NVN-89222

DECISION RECORD

Spring Valley Wind LLC 1600 Smith Street, Suite 4025 Houston, Texas 77002	: : : :	Decision Record DOI-BLM-NV-L020-2010-0007-EA

I have reviewed the application, the Final Environmental Assessment (EA) (DOI-BLM-NV-L020-2010-0007-EA), and have issued a Finding of No Significant Impact (FONSI) for Spring Valley Wind LLC's proposal for the Spring Valley Wind Energy Facility (SVWEF) Project. It is my decision to approve the Alternate Development Alternative, Osceola Switchyard, and mineral material sales as described in the EA. The construction, operation, and reclamation design features (section 2.1.4 of EA) and mitigation measures outlined below would be adhered to:

In accordance with 43 CFR 2801.10(b), this Decision is in full force and effective immediately. There will be no ground disturbing activities until a Notice to Proceed (NTP) is issued.

Facility Commitments

- Use existing roads and utility corridors – The primary north-south road follows an existing dirt road, and the project will tie into the existing 230-kV line.
- Use tubular conical steel turbine towers – Tubular towers do not provide locations for raptors to perch, which decreases the risk of collisions with turbine blades.
- Underground collection system – Reduces the visual impact of overhead transmission as well as the potential impact to avian and bat species from collisions.
- Setbacks – Turbines would be set back from public roads at least 1.1× total turbine height and would be set back 1.5× total turbine height from any property lines and ROW boundary.

Construction, Operation, and Decommissioning Commitments

- Construction vehicle movement within the project boundary would be restricted to predesignated access, contractor-required access, and public roads.

- A qualified third-party contractor will serve as an Environmental Inspector to ensure compliance with all project authorizations, permits, and approvals.
- In construction areas where ground disturbance is unavoidable, surface restoration would consist of recontouring and reseeding with a BLM-approved seed mix. A full list of BMPs would be included in the project's Construction, Operation, and Maintenance (COM) Plan.
- Geotechnical investigations will be done for each turbine to ensure not to puncture and dewater the aquifer. Specific measures will be developed as needed to address geotechnical issues.
- If the perching ground water layer, as identified by the onsite geologist or geotechnical engineer or engineer's representative is breached, the hole or breach point will be seal grouted to preserve the subsurface hydrology that feeds the local system.
- For all excavations, the crews will be instructed to minimize the period of time that a trench or hole is open; however, in some cases excavations will be left open overnight or for several days in the case of turbine foundations. For all excavations left overnight, measures will be put in place to prevent injury to wildlife. Those measures include either covering holes or installing temporary visible barriers around trenches/holes. All turbine foundations will also have ramps that would allow animals to climb out.
- The Traffic Management Plan (see final EA Appendix B) will be followed for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan shall incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration. Additionally, SVW would consult with local planning authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day and their size and type.
- A detailed transportation plan/route study will be completed following the transportation planning requirements described in Appendix B of the final EA.
- The Lighting Plan (see final EA Appendix C) will be followed to ensure that lighting is installed to meet safety and FAA requirements as well as to reduce night sky lighting and wildlife effects.

Resource Conservation Measures

- Measures from the PEIS would be followed as shown in Table 6.2-1 of the final EA.
- Cultural Resources Monitoring and Discovery Plan (final EA Appendix E) – The plan describes procedures to follow in accordance with state and federal laws, if archaeological materials or human remains are discovered. Adherence to this plan will protect cultural resources that are discovered, assist construction personnel in complying with applicable laws, and expedite the project in the event of discovery.
- Direct avoidance of any eligible cultural resources.
- A worker education awareness program providing instruction on avoiding harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting)

seasons, will be provided to all construction employees prior to ground breaking activities.

- Avian and Bat Protection Plan (ABPP) (final EA Appendix F) – The plan describes initial mitigation requirements, post-construction monitoring requirements, and an adaptive mitigation strategy. The plan uses a tiered approach that would result in different levels of mitigation being implemented based on the findings of postconstruction monitoring.
- Facilities shall be designed to discourage their use as perching or nesting substrates by birds. For example, power lines and poles shall be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching. The BLM and the project proponent will consult with Nevada Department of Wildlife (NDOW) on the final deterrent design.
- Migratory birds – If construction is planned between March 15 and July 30, migratory bird clearance surveys would be conducted no more than one week before construction. Evidence of active nests or nesting would be reported immediately to the BLM to determine appropriate minimization measures (i.e., avoidance buffer would be established until birds have fledged the nest) on a case-by-case basis.
- Nest surveys will be conducted prior to the nesting season (approximately March 15 to July 30) and once each month during the nesting season during the first three years and every fifth year after that. Aerial or ground based raptor nest surveys will be conducted within the entire project area and a 1-mile buffer for raptors, except for golden eagles. Golden eagle search distances will be 10 miles from the project area based on current USFWS guidance. The complete 10-mile search area will be limited to once at the beginning of the golden eagle nesting season with monthly follow-up surveys only being completed for identified golden eagle or potential golden eagle nests. Disturbance will not occur from May 1 through July 15 within 0.5 mile of any raptor nest site that has been active within the past 5 years. See Appendix F, Section 4.5 of the final EA for further details on this measure. If a bird nest is found to be in use, the Technical Advisory Committee (TAC) would recommend necessary action based on the ABPP (see Appendix F of the final EA).
- All new above ground poles and transmission lines installed will be constructed to Avian Powerline Interaction Committee (APLIC 2006) standards to reduce the likelihood of collision and electrocution.
- Where appropriate, permitted activities would be restricted from March 1 through May 15 within 2 miles of an active greater sage-grouse lek.
- As part of the project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration. An effort must first be made to apply the funds to sagebrush restoration within Spring Valley and then outside of the valley if necessary. Donations into this account are eligible for matching federal funding. All decisions of how to utilize the money will require both NDOW and the BLM approval.

- Where appropriate, permitted construction activities would be restricted from November 1 through March 31 within greater sage-grouse winter range. If activities must occur during that time, a survey would occur prior to work to determine whether greater sage-grouse are present. Pedestrian transect surveys spaced 300 feet apart would be conducted within the proposed areas of disturbance and a ¼ mile buffer. If individuals are not present, work may commence; if individuals are present, the BLM would determine necessary action such as requiring an on-site biological monitor or restricting work areas until sage-grouse have left the project area.
- A site-specific Stormwater Pollution Prevention Plan (SWPPP) would be prepared following the requirements outlined in the project SWPPP and SPP (see Appendix D of the final EA).
- Restoration and Weed Management Plan – A Restoration and Weed Management Plan has been completed for the project (see Appendix A of the final EA) and would be followed.
- Micrositing of staging and temporary use areas will be completed as practicable to avoid winterfat-dominated sites.
- For soil-disturbing actions that would require reclamation, salvage and stockpile all available growth medium prior to surface disturbances. Seed stock piles if they are to be left for more than one growing season. Recontour all disturbance areas to blend as closely as possible with the natural topography prior to revegetation. Rip all compacted portions of the disturbance to an appropriate depth based on recognizable soil compaction indicators, i.e., platy soil structure. Establish an adequate seed bed to provide good seed to soil contact.
- Any swamp cedar that must be removed would be made available for education, scientific, and research purposes as determined by the BLM.
- Measures for reducing the spread and establishment of noxious and invasive weeds have been incorporated into the Restoration and Weed Management Plan in Appendix A of the final EA. The plan addresses monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching is required. Trucks and construction equipment (including mobile office trailers, etc) arriving from other locations would have a controlled inspection and a cleaning area would be established to visually inspect equipment arriving at the project area and to remove and contain seeds that may be adhering to tires and other equipment surfaces.
- If pesticides are used on the site, an integrated pest management plan shall be developed to ensure that applications would be conducted within the framework of BLM and U.S. Department of the Interior policies and entail only the use of U.S. Environmental Protection Agency (EPA)-registered pesticides. Pesticide use shall be limited to non-persistent, immobile pesticides and shall only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.
- Weed management in areas of special status species will carefully consider the impacts of the treatment on the organism. Whenever possible, manual control or spot treatment using herbicides is preferred over less species specific methods. Do not conduct noxious

and invasive weed control within 0.5 mile of nesting and brood rearing areas for special status species during the nesting and brood rearing season.

- All straw, hay, straw/hay, or other organic products used for reclamation or stabilization activities must be certified that all materials are free of plant species listed on the Nevada noxious weed list or specifically identified by the Ely District Office. Inspections would be conducted by a weed scientist or qualified biologist.
- Where appropriate, vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground-disturbing activities; for emergency fire suppression; or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. Vehicles and equipment would be cleaned with power or high-pressure equipment prior to entering or leaving the work site or project area. Vehicles used for emergency fire suppression would be cleaned as a part of check-in and demobilization procedures. Cleaning efforts would concentrate on tracks, feet, or tires and on the undercarriage. Special emphasis would be applied to axles, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out, and refuse would be disposed of in waste receptacles. Cleaning sites would be recorded using global positioning systems (GPS) or other mutually acceptable equipment and provided to the Ely District Office Weed Coordinator or designated contact person.
- Prior to the entry of vehicles and equipment to a planned disturbance area, a weed scientist or qualified biologist would identify and flag areas containing weeds. The flagging would alert personnel or participants to avoid areas of concern whenever possible.
- To minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped. Appropriate measures would be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials would be returned to the area from which they were stripped.
- A 3.6-mile-long fence would be constructed outside the northeast corner of the project area to keep cattle in the Bastian Creek Allotment from entering the project area during construction and rehabilitation. The new fence would tie with existing fences associated with management of the grazing allotment. SNWA owns 80 acres with a water source for grazing animals at the northeast corner of the project area. A fence surrounding the SNWA 80-acre parcel would also be constructed with gates allowing access from inside and outside the project area.
- A 5.6-mile-long fence would be constructed on the west side of the project area to connect with existing fences in order to keep cattle in the Majors Allotment from entering the project area during construction and rehabilitation. Cattle guards will be added at the two road crossings along the fence line. The fence specifications would be the same as those for the Bastian Creek fence described above.
- Subject to FAA approval, an intelligent on-demand lighting system would be installed on WTGs.

Ely Resource Management Plan/Final Environmental Impact Statement (RMP/FEIS)-Adopted Mitigation Measures (Appendix F, Section 3)

- All control and mitigation measures established for the project in the POD and resource-specific management plans that are part of the POD shall be maintained and implemented throughout the construction and operation phases, as appropriate. The number and size/length of roads, temporary fences, laydown areas, and borrow areas shall be minimized.
- Roads shall be located away from drainage bottoms and avoid wetlands, if practicable.
- Access roads shall be located to minimize stream crossings. All structures crossing streams shall be located and constructed so that they do not decrease channel stability or increase water velocity. Operators shall obtain all applicable federal and state permits.
- Ongoing ground transportation planning shall be conducted to evaluate road use, minimize traffic volume, and ensure that roads are maintained adequately to minimize associated impacts.
- Inoperative turbines shall be repaired, replaced, or removed in a timely manner. Requirements to do so shall be incorporated into the due diligence provisions of the ROW authorization. Operators will be required to demonstrate due diligence in the repair, replacement, or removal of turbines; failure to do so could result in termination of the rights-of-way authorization.
- Prior to the termination of the rights-of-way authorization, a Decommissioning Plan shall be developed and approved by the BLM. The Decommissioning Plan shall include a Site Reclamation Plan and monitoring program. The Reclamation Plan is available in Appendix A of the final EA.
- All management plans, BMPs, and stipulations developed for the construction phase shall be applied to similar activities during the decommissioning phase.
- Site monitoring protocols defined in the POD shall be implemented. These will incorporate monitoring program observations and additional mitigation measures into standard operating procedures and BMPs to minimize future environmental impacts.
- Results of monitoring program efforts shall be provided to the BLM authorized officer.

Project-Specific Mitigation

- Prior to construction, a botanist approved by the BLM will identify potential habitat for Parish phacelia within 100 feet of the limits of construction disturbance and conduct site-specific surveys in those areas during the appropriate flowering season (April through August).
- Following construction activities, as described in the Restoration and Weed Management Plan (see Appendix A of the final EA), use soil and rock stain on restored areas to reduce the visible color contrast between bare soil and vegetation.
- Per SHPO requirements, complete detailed recordation and specific photo documentation (prior to construction), of any eligible sites that would be visually impacted by the project, this will be completed to SHPO (2010) standards.

AUTHORITIES:

1) The Alternate Development Alternative is in conformance with the Ely District Record of Decision and Approved Resource Management Plan. Section 2.6 of the final EA documents the conformance with BLM Land Use Plan.

2) The Alternate Development Alternative is also consistent with all relevant federal, state, and local statutes, regulations, and plans as described in section 2.7 of the final EA. The known federal, state, and local agencies' approvals, reviews, and permitting requirements that are anticipated to be needed for these new electrical facilities are in Table 2.7-1, of the final EA.

RATIONALE FOR DECIOSION:

In the FONSI for the proposed SVWEF, a determination was made that the Selected Alternative will not significantly affect the quality of the human environment and that preparation of an Environmental Impact Statement is not required. The Selected Action (Alternate Development Alternative) meets the BLM's need for the action; to respond to SVW's application under Title V of the Federal Land Policy and Management Act (FLPMA) (43 United States Code [USC] 1761) for a ROW grant to construct, operate, and decommission wind energy generation facilities and associated infrastructure in accordance with FLPMA, BLM ROW regulations, and other applicable federal laws, additionally, the BLM has a need to respond to SVW's application for mineral materials sites (Gravel Pits A and B) and to their application for the construction and operation of the Osceola Switchyard.

The final EA analyzed three alternatives; the Proposed Action, The Alternate Development Alternative, and the No Action Alternative. In addition to meeting the purpose and need for action, the Alternate Development Alternative was selected over the other alternatives because it meets the purpose and need for action and results in the least amount of environmental impact as summarized in section 2.4 Comparison of Alternatives, in the final EA.

PUBLIC INVOLVEMENT:

The revised preliminary EA was published on July 17, 2010 and made available for public input until August 18, 2010. An unsigned draft FONSI was also issued for public comment based on BLM Handbook H-1790-1, section 8.4.2. Thirty-five comment letters containing 465 comments were received from 7 government agencies, 2 businesses, 14 individuals, 10 organizations, and 2 tribes. For a detailed summary of the comments received and how BLM addressed these comments in preparing the final EA, refer to Appendix H of the final EA. The final EA for the Spring Valley Wind Energy Facility Project is available on the BLM's web site at www.nv.blm.gov/ely, or contact the Ely BLM District Office (775-289-1800).

APPEALS:

This decision may be appealed to the Interior Board of Land Appeals (Board), U. S. Department of the Interior (DOI) Office of Hearings and Appeals, in accordance with the regulations contained in 43 CFR, Part 4. The appellant has the burden of showing that the decision appealed from is in error. If an appeal is taken, a notice of appeal must be filed at the Bureau of Land Management at the address below within 30 days either of receipt of the decision if served a copy of the document, or otherwise within 30 days of the date of the decision. If sent by United States Postal Service, the notice of appeal must be sent to the following address:

Bureau of Land Management
Ely District Office
HC 33 Box 33500
Ely, NV 89301.

The appeal may include a statement of reasons at the time the notice of appeal is filed, or the statement of reasons may be filed within 30 days of filing this appeal. At the same time the original documents are filed with this office, copies of the notice of appeal, statement of reasons, and all supporting documentation also must be sent to each party named in this decision and to the U. S. DOI Solicitor at the following address:

Regional Solicitor, Pacific Southwest Region
U.S. Department of the Interior
2800 Cottage Way, Room E-2753
Sacramento, CA 95825-1890

If a statement of reasons is filed separately from the notice of appeal, it also must be sent to the following location within 30 days after the notice of appeal was filed:

Interior Board of Land Appeals
Office of Hearings and Appeals
4015 Wilson Boulevard
Arlington, VA 22203

This Decision will remain in effect during the appeal unless a petition for stay is granted. If the appellant wishes to file a petition pursuant to regulations at 43 CFR 4.21 for a stay of the effectiveness of this decision during the time that the appeal is being reviewed by the Board, the petition for a stay must accompany the notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. If the appellant requests a stay, the appellant has the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or by other pertinent regulation, a Petition for a Stay of a Decision pending appeal shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied,
(2) The likelihood of the appellant's success on the merits,
(3) The likelihood of immediate and irreparable harm if the stay is not granted, and
(4) Whether the public interest favors granting the stay.

Approved by:

Mary D'Aversa ______________________ 10/15/2010 ______________________

Mary D'Aversa
Field Manager
Schell Field Office

Date

U.S. Department of the Interior
Bureau of Land Management

BLM

Finding of No Significant Impact
DOI-BLM-NV-L020-2010-0007-EA
October 2010

SPRING VALLEY PROPOSED WIND ENERGY FACILITY

Location:
Spring Valley, White Pine County, Nevada

Applicant/Address:
Spring Valley Wind LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

U.S. Department of the Interior
Bureau of Land Management
Ely District Office
Schell Field Office
Phone: (775) 289-1800
Fax: (775) 289-1910

NATIONAL SYSTEM OF PUBLIC LANDS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
SCHELL FIELD OFFICE

INTRODUCTION

The Bureau of Land Management (BLM) prepared an Environmental Assessment (EA) (DOI-BLM-NV-L020-2010-0007-EA) that analyzed the effects of development of a 149.1-megawatt wind facility on up to 8,565 acres in Spring Valley east of Ely, Nevada. The EA considered a range of development alternatives, including the Proposed Action, Alternate Development Alternative, and No Action Alternative. The EA is tiered to, and incorporates by reference, both the *Ely Proposed Resource Management Plan/Final Environmental Impact Statement* (RMP/FEIS), released in November 2007 (BLM 2007), and the BLM *Wind Energy Development Programmatic Environmental Impact Statement* (PEIS), released in June 2005 (BLM 2005).

I have reviewed the EA for the Spring Valley Wind Facility (DOI-BLM-NV-L020-2010-0007-EA), dated July 2010. After consideration of the environmental effects as described in the EA, I have determined that the Alternate Development Alternative (Selected Alternative), with the project design features, including mitigation measures identified in the EA and outlined below, will not significantly affect the quality of the human environment and that an Environmental Impact Statement (EIS) is not required.

Mitigations from EA:

Resource Measures:

Numerous mitigation and conservation measures are included as part of the Selected Alternative, as listed in Sections 2.2.4, 6.2, and 6.3 of the EA. Additionally, all relevant best management principles (BMPs) and mitigation measures listed in the PEIS (BLM 2005) and Ely RMP/FEIS (BLM 2007) are incorporated by reference. Therefore, most potential impacts are sufficiently reduced through design features of the Selected Alternative and do not require additional mitigation. A third-party construction monitor, approved by the BLM, will be employed by the proponent to ensure compliance with all BMPs and mitigation and conservation measures identified in the EA. The measures below were developed to mitigate impacts resulting from the Selected Alternative that were not addressed as part of construction or operation design. These measures would reduce all impacts to acceptable levels.

- Prior to construction, a BLM-approved botanist will identify potential habitat for Parish phacelia within 100 feet of the limits of construction disturbance and conduct site-specific surveys in those areas during the appropriate flowering season (April through August [Nevada Natural Heritage Program 2001]).
- Following construction activities, as described in the Restoration and Weed Management Plan, the proponent will use soil and rock stain on restored areas to reduce the visible color contrast between bare soil and vegetation.
- Per SHPO requirements, complete detailed recordation and specific photo documentation (prior to construction), of any eligible sites that would be visually impacted by the project will be completed to SHPO (2010) standards.

I have also considered the Council on Environmental Quality's criteria for significance (40 Code of Federal Regulations 1508.27), with regard to the context and the intensity of impacts described in the EA:

Context:

The project is located within a sparsely inhabited area in eastern Nevada near Great Basin National Park. The primary economic activity is cattle ranching and mining. Although little human activity occurs within the project area, the surrounding area experiences a moderate amount of recreational activity. Some development, such as a utility corridor with four sets of existing power lines, passes through the project area. U.S. Route 6/50 passes south and east of the project area.

Intensity:

1) *Impacts that may be both beneficial and adverse:*

   All known adverse impacts have been mitigated to the extent practical by designing the Selected Alternative to avoid them as much as possible. Adverse impacts include a visual contrast with the existing landscape, short-term increases in traffic volume, slightly decreased recreational value, short-term loss of animal unit months, avian and bat mortality, and reduction in wildlife habitat quality. Residual and unknown impacts to wildlife will be monitored and mitigated through an adaptive management plan that has been crafted to address impacts as operational data are gathered.

   The primary beneficial impact is a small reduction in anthropogenic greenhouse gases that would otherwise have been generated by fossil-fuel electricity generation. This reduction is a fraction of a percent of the total anthropogenic output and is not significant. Additionally, there would be a beneficial impact to socioeconomics from additional employment opportunities and increases in tax revenues.

2) *The degree to which the Proposed Action affects public health or safety:*

   The vast majority of potential impacts to health and safety would occur during the construction and decommissioning phases of the project. The Proposed Action has been designed to control public access to the construction site to prevent construction-related accidents. Plans for fire management, transportation of large equipment, etc., will be included in the Construction, Operations and Maintenance Plan and will address potential public hazard situations.

3) *Unique characteristics of the geographic area such as proximity to historical or cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:*

   Impacts to historic and cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, and ecologically critical areas were all considered when designing the proposed Selected Alternative. Surveys for cultural resources and an ethnographic study were conducted to allow avoidance of important cultural and historical resources. Wetlands and occurrences of a rare subspecies of Rocky Mountain juniper were avoided. Visual studies were conducted to assess the impacts to the nearby Great Basin National Park. There are no impacts that exceed the thresholds disclosed in the PEIS (BLM 2005) or the RMP/FEIS (BLM 2007).

   The degree to which the effects on the quality of the human environment are likely to be highly controversial:

   The environmental effects of wind farms are disclosed in the PEIS (BLM 2005). Potentially controversial issues have been identified through presentations and discussions with stakeholders and county commissioners, and the project proponent and BLM have addressed those issues through development of the Alternate Development Alternative and mitigation measures in the EA.

4) *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks:*

   Although the PEIS (BLM 2005) discloses that impacts to avian and bat species are known to occur from wind energy facilities, the ultimate degree of impacts that will occur from the SVWEF

Project is unknown, but the Avian and Bat Protection Plan would ensure that in the long term, impacts remain below designated mortality thresholds (203 birds/year and 192 bats/year). The proximity of the project area to the Rose Guano cave adds an increased potential for impacts to the Brazilian free-tailed bat population, which migrates through the area during the late summer and early fall each year. However, a two-year preconstruction study was completed to help determine impacts, and a protection plan has been developed to address any uncertainty regarding impacts. Implementation of the plan will prevent significant impacts to avian and bat populations.

5) *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:*

   The Selected Alternative has been designed to avoid setting precedents that could influence the design of future projects. For instance, the action avoids constructing towers in close proximity to active sage-grouse leks.

6) *Whether the action is related to other actions with individually insignificant, but cumulatively significant impacts:*

   A cumulative impact analysis was conducted in the EA. No cumulatively significant impacts were identified.

7) *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources:*

   The ethnographic study prepared for the project greatly enhanced the understanding of the historic and cultural significance to the area adjacent to the project area. The Selected Alternative was designed to avoid impacts to scientific, cultural, and historic resources and proposes to enhance public awareness and understanding of these resources. Up to five eligible historic structures would be visually impacted by the project; however, mitigation meeting State Historic Preservation Office standards would be completed to reduce impacts.

8) *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973:*

   No listed species were identified as being potentially impacted by the Selected Alternative because none are known in the project area.

9) *Whether the action threatens a violation of federal, state, local, or tribal law or requirements imposed for the protection of the environment:*

   All environmental laws were considered while designing the Selected Alternative to prevent possible violations.

FINDING OF NO SIGNIFICANT IMPACT

I have determined that, with incorporation of the mitigation measures listed above, the Selected Alternative will not significantly affect the quality of the human environment and that preparation of an EIS is not required.

Mary D'Aversa | 10/15/2010

Mary D'Aversa
Field Office Manager
Schell Field Office

Date

LITERATURE CITED

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BLM

U.S. Department of the Interior
Bureau of Land Management

Final Environmental Assessment
DOI-BLM-NV-L020-2010-0007-EA
October 2010

Spring Valley Wind Energy Facility

Location:
Spring Valley, White Pine County, Nevada

Applicant/Address:
Spring Valley Wind LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

U.S. Department of the Interior
Bureau of Land Management
Schell Field Office
Phone: (775) 289-1800
Fax: (775) 289-1910

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ACRONYMS AND ABBREVIATIONS

AADT	average annual daily traffic
ABPP	Avian and Bat Protection Plan
ACEC	Area of Critical Environmental Concern
AFY	acre-feet per year
AHPA	Archaeological and Historic Preservation Act
AIRFA	American Indian Religious Freedom Act
amsl	above mean sea level
APE	area of potential effect
ARPA	Archaeological Resources Protection Act
AUM	animal unit month
BGEA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
Census Bureau	U.S. Census Bureau
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
COM	Construction, Operation, and Maintenance
dB	decibels
dBA	A-weighted sound levels
DOE	Department of Energy
DR	Decision Record
EA	Environmental Assessment
EIA	Energy Information Administration
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPAct 05	Energy Policy Act of 2005
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FIPP	Financial Institution Partnership Program
FLMPA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GBNP	Great Basin National Park
GHG	greenhouse gas
GIS	geographic information system
GPD	gallons per day

GPS	global positioning system
HV	high voltage
HWI	HawkWatch International
IA	Interconnection Agreement
IM	Instruction Memorandum
IPCC	Intergovernmental Panel on Climate Change
KOP	Key Observation Point
kV	kilovolt
Ldn	day-night level
Leq	equivalent sound levels
MBTA	Migratory Bird Treaty Act
MET tower	meteorological tower
mph	miles per hour
m/s	meters per second
MW	Megawatt
NAC	Nevada Administrative Code
NAGPRA	Native American Graves and Repatriation Act
NDEP	Nevada Department of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNHP	Nevada’s Natural Heritage Program
NPS	National Park Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NWCC	National Wind Coordinating Collaborative
O&M	operations and maintenance
OHV	off-highway vehicle
OSHA	Occupational Safety and Health Administration
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
$PM_{2.5}$	particulate matter with diameter of 2.5 microns or less
PM_{10}	particulate matter with diameter of 10 microns or less
POD	Plan of Development
PPA	Power Purchase Agreement
RD	rotor diameters
Recovery Act	American Recovery and Reinvestment Act of 2009

RFFA	Reasonably Foreseeable Future Action
RI	risk index
RMP/FEIS	Resource Management Plan/Final Environmental Impact Statement
ROD	Record of Decision
ROW	right-of-way
rpm	rotations per minute
RPS	Renewable Portfolio Standard
RSA	rotor-swept area
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Officer
SMP	suggested management practice
SNWA	Southern Nevada Water Authority
SPP	Spill Prevention Plan
SR	State Route
SRMA	Special Recreation Management Area
SVW	Spring Valley Wind LLC
SVWEF	Spring Valley Wind Energy Facility
SWCA	SWCA Environmental Consultants
SWIP	Southwest Intertie Project
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
TCP	Traditional Cultural Property
TWA	time-weighted average
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WTG	wind turbine generator

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze Spring Valley Wind, LLC's (SVW's), proposal to construct the Spring Valley Wind Energy Facility (SVWEF). The EA is a site-specific analysis of potential impacts that could result from implementation of the Proposed Action or selected alternative. The EA assists the Bureau of Land Management (BLM) in project planning and in ensuring compliance with the National Environmental Policy Act (NEPA).

SVW has also applied for a loan guarantee from the U. S. Department of Energy (DOE) Loan Guarantee Program under Title XVII of the Energy Policy Act of 2005 (EPAct 05) for construction and startup of this facility. DOE is a cooperating agency in the development of this EA pursuant to its jurisdiction under the EPAct 05 to issue a loan guarantee to SVW to assist with the financing of the SVWEF. Issuance of a loan guarantee is subject to review under NEPA, and DOE will use this EA to assist its decision-making regarding whether to issue a loan guarantee to SVW.

This document is tiered to, and incorporates by reference, both the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (RMP/FEIS), released in November 2007 (BLM 2008a), and the BLM Wind Energy Development Programmatic Environmental Impact Statement (PEIS), released in June 2005 (BLM 2005). Should a determination be made that implementation of the Proposed Action would not result in significant environmental impacts or significant environmental impacts beyond those already disclosed in the existing NEPA documents, a Finding of No Significant Impact (FONSI) would be prepared to document that determination and a Decision Record (DR) issued that provides a rationale for approving the selected alternative.

1.1 Background

In order to address the growing interest in developing wind energy resources and National Energy Policy recommendations to increase renewable energy production capability, the BLM began evaluating wind energy potential on public lands and developing a wind energy policy (National Energy Policy Development Group 2001). In October 2003, the BLM started preparation of a PEIS to analyze the potential impacts of wind energy development to public lands and to minimize those impacts to natural, cultural, and socioeconomic resources. The PEIS was published in June 2005, and in December 2005 the ROD was signed to implement a comprehensive Wind Energy Development program on BLM-administered lands in the western United States. The program has established policies and best management practices (BMPs) to address the administration of wind energy development actions on BLM lands and identifies the minimum requirements for mitigation measures. The programmatic policies and BMPs of the Wind Energy Development program allow project-specific analysis to focus on the site-specific issues and concerns of individual projects as outlined on pages A3–A4 of Attachment A to the ROD:

> The level of environmental analysis to be required under NEPA for individual wind power projects will be determined at the FO (Field Office) level. For many projects, it may be determined that a tiered environmental assessment (EA) is appropriate in lieu of an EIS. To the extent that the PEIS addresses anticipated issues and concerns associated with an individual project, including potential cumulative impacts, the BLM will tier off of the decisions embedded in the PEIS and limit the scope of additional project-specific NEPA analyses. The site-specific NEPA analyses will include analyses of project site configuration and micrositing considerations, monitoring program requirements, and appropriate mitigation measures. In particular, the mitigation measures discussed in Chapter 5 of the PEIS may be consulted in determining site-specific requirements. Public involvement will be incorporated into all wind energy development

> projects to ensure that all concerns and issues are identified and adequately addressed. In general, the scope of the NEPA analyses will be limited to the proposed action on BLM-administered public lands; however, if access to proposed development on adjacent non-BLM-administered lands is entirely dependent on obtaining ROW access across BLM-administered public lands and there are no alternatives to that access, the NEPA analysis for the proposed ROW may need to assess the environmental effects from that proposed development. The BLM's analyses of ROW access projects may tier off of the PEIS to the extent that the proposed project falls within the scope of the PEIS analyses. (BLM 2005)

On March 11, 2005, BLM released H-1601-1, Land Use Planning Handbook, replacing the previous version. Appendix C of the new Handbook directs that Land Use Plans identify "existing and potential development areas for renewable energy projects (e.g., wind and solar)." Map 13 of the Ely RMP/FEIS (BLM 2008a) identifies the wind energy potential in Spring Valley, east of Ely, Nevada, as "moderate to high," but no areas were specifically designated for development.

On August 24, 2006, the BLM Washington Office issued Instruction Memorandum (IM) 2006-216, Right-of-Way Management, Wind Energy Land Use Plan Amendments, Wind Energy. The IM provided guidance on issuing rights-of-way (ROWs) for wind energy testing, monitoring, and development. Until then, the BLM had an interim wind energy policy, issued in 2002.

In anticipation of submission of an Interconnection Agreement (IA), Sierra Pacific (doing business as NV Energy) conducted a System Impact Study (further confirmed by Nevada Power Transmission Personnel) that revealed up to 149.1 megawatts (MW) could be injected into the current Sierra Pacific 230-kilovolt (kV) line in Spring Valley, without any significant upgrades (network or otherwise) other than the proposed substation. In January 2006, Babcock & Brown (since acquired by Pattern Energy), through SVW, submitted an IA to Sierra Pacific and applied for a testing and monitoring ROW with the BLM. Since then, SVW has maintained anemometers to determine the suitability of the project for wind energy development.

In October 2007, SVW applied for a ROW grant from the BLM for Commercial Wind Energy Development Facilities, as described in IM 2006-216. The ROW application included a draft Plan of Development (POD) for the construction, operation, and maintenance of the 149.1-MW SVWEF and associated facilities. Additionally, a mineral materials permit would be issued for Gravel Pits A and B. The proposed SVWEF would be located in Spring Valley about 20 miles east of Ely, Nevada (Figure 1.1-1). Facilities for the Proposed Action would consist of 75 wind turbine generators (WTGs), an underground electrical collection system, a substation, a switchyard, an operations and maintenance (O&M) building, and access roads. The BLM determined that an EA was needed to determine whether the project would result in significant environmental impacts beyond those already disclosed in the NEPA documents discussed in Section 1.0. Studies as outlined in Section A.1 of the Wind Energy PEIS ROD (Attachment 1 of the IM [BLM 2005]) were completed and as information about wind resources and other resource impacts became available, extensive revisions were made to the POD to exploit the maximum wind potential while avoiding potential significant impacts.

In December 2008, the BLM issued IM 2009-043, Right-of-Way Management, Wind Energy, which updated the previous IM 2006-216. The updated IM provides guidance on issuing ROWs for wind energy testing, monitoring, and development, as well as clarifies BLM wind energy development policies and BMPs. SVW updated its POD to conform to Attachment 2 and Section 2 of Attachment 1 of the IM. The POD was tentatively finalized in October 2009 and will be finalized following completion of NEPA documentation prior to issuance of a DR.

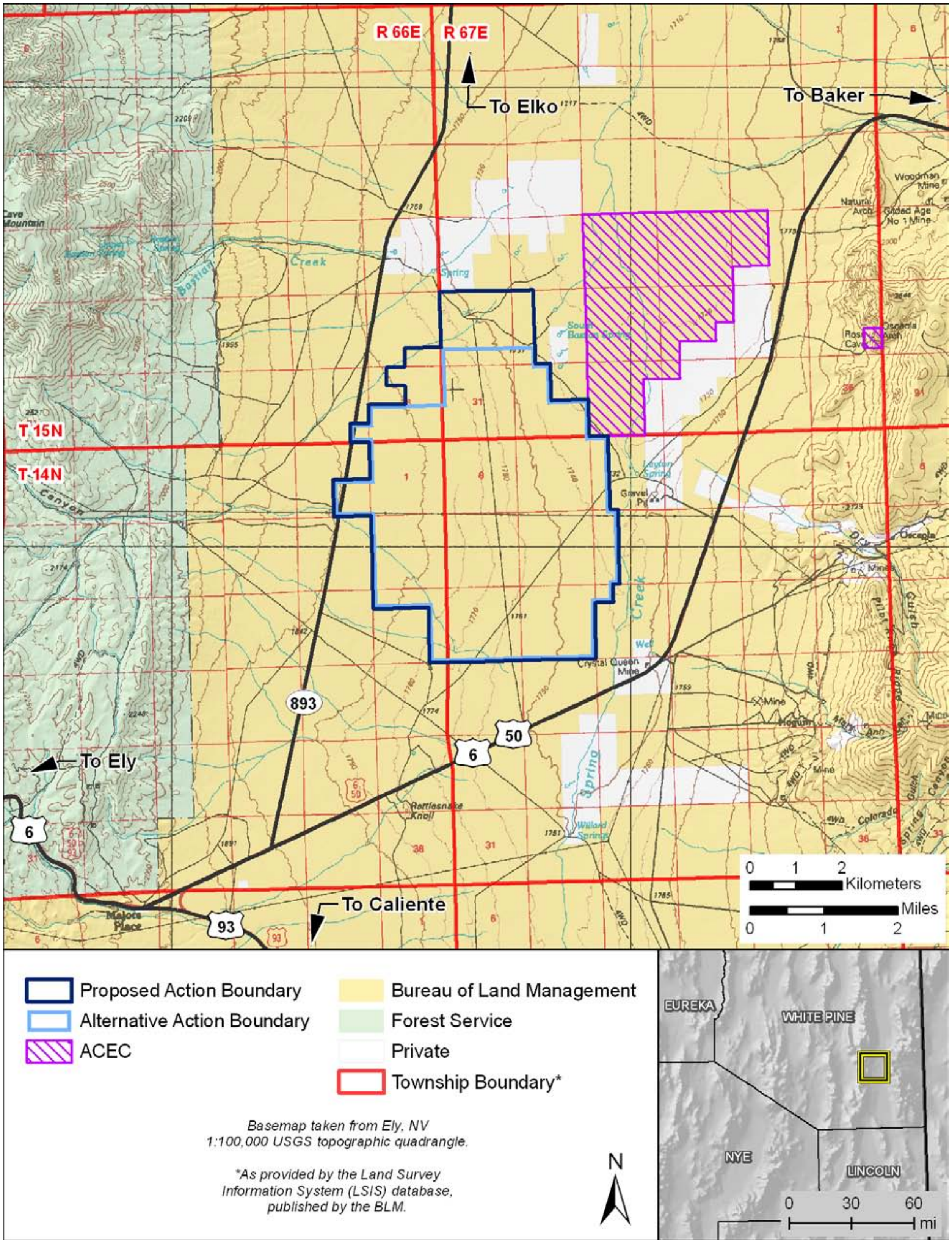

Figure 1.1-1. SVWEF location map.

Additionally, in June 2009 Department of the Interior Secretary Ken Salazar announced plans for BLM to "fast-track" renewable energy. The SVWEF is one of the projects listed as a fast-track project. Fast-track projects are those where the companies involved have demonstrated to the BLM that they have made sufficient progress to formally start the environmental review and public participation process. These projects are advanced enough in the permitting process that they could potentially be cleared for approval by December 2010, thus making them eligible for economic stimulus funding under the American Recovery and Reinvestment Act of 2009 (Recovery Act). Four Renewable Energy Coordination Offices, including two in Nevada, were formed to expedite processing these renewable energy project applications.

1.2 Purpose of and Need for Action

The BLM's purpose and need for the SVWEF Project is to respond to SVW's application under Title V of the Federal Land Policy and Management Act (FLPMA) (43 United States Code [USC] 1761) for a ROW grant to construct, operate, and decommission wind energy generation facilities and associated infrastructure in accordance with FLPMA, BLM ROW regulations, and other applicable federal laws. Additionally, the BLM has a need to respond to SVW's application for mineral materials sites (Gravel Pits A and B) and its application for the construction and operation of the Osceola switchyard. A separate ROW request would be made for the Osceola switchyard and associated facilities because following project construction the ROW grant may be assigned to NV Energy. Because these additional actions are in support of the SVWEF, they are defined as connected actions and must be analyzed under a single NEPA document. The BLM will decide whether to approve, approve with modification, or deny issuance of the ROW grants and permits to SVW for the proposed SVWEF, the proposed Osceola switchyard and associated facilities, and the proposed mineral materials sites, and if so, under what conditions.

SVW has applied to DOE for a loan guarantee under Title XVII of EPAct 05, as amended by Section 406 of the American Recovery and Reinvestment Act of 2009, Public Law (PL) 111-5 (the Recovery Act). DOE is a cooperating agency on this EA pursuant to a Memorandum of Understanding between DOE and BLM Nevada signed in March 2010. The purpose and need for action by DOE is to comply with its mandate under EPAct 05 by selecting eligible projects that meet the goals of the act.

The EPAct 05 established a federal loan guarantee program for eligible energy projects and was amended by the Recovery Act to create Section 1705 authorizing a new program for rapid deployment of renewable energy projects and related manufacturing facilities, electric power transmission projects, and leading-edge biofuels projects. The primary purposes of the Recovery Act are job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and state and local fiscal stabilization. The Section 1705 Program is designed to address the current economic conditions of the nation, in part, through renewable energy, transmission, and leading-edge biofuels projects.

On August 2, 2010, John Hancock Life Insurance Company, as Lender-Applicant, with SVW, submitted an application to the DOE Loan Guarantee Program for a federal loan guarantee for the wind energy generation facility in response to DOE's October 7, 2009, solicitation, "Federal Loan Guarantees for Commercial Technology Renewable Energy Generation Projects under the Financial Institution Partnership Program." For this solicitation, DOE is implementing the application process by directly working with certain qualified financial institutions through a set of procedures established by DOE as its Financial Institution Partnership Program (FIPP). In general, the FIPP is intended to expedite the loan guarantee process and expand senior credit capacity for the efficient and prudent financing of eligible projects under Section 1705 of Title XVII that use commercial technologies. This objective will be primarily accomplished by additional roles defined for certain financial institutions satisfying applicable qualifications set forth by DOE. Under the FIPP program, proposed borrowers and project sponsors may not apply directly to DOE but must instead work with a financial institution that meets DOE qualification as a Lead Lender.

DOE will decide whether to grant a loan guarantee to SVW to finance the construction and startup of the proposed SVWEF. DOE's regulations guiding its decision are at 10 Code of Federal Regulations (CFR) Part 1021, NEPA Implementing Procedures.

Recent national and regional electrical demand forecasts have predicted that the growing consumption of electrical energy would increase in the foreseeable future and would require development of new resources to satisfy this demand. The DOE Energy Information Administration (EIA) has forecast a 23.0% growth in electricity sales by 2030, including a projected increase of 19.8% in the residential sector, 38.3% in the commercial sector, and 7.1% in the industrial sector. This growth would require an increase in generating capacity of 231 gigawatts (231,000 MW) nationwide by the year 2030 (EIA 2009).

There is growing interest and support for the development of new wind energy resources in the United States. Wind energy is now second only to natural gas plants in new power generation capacity added between 2005 and 2007. Additionally, up to 7,500 MW of new capacity has been added in 2008, contributing at least 35% of new power generation capacity (American Wind Energy Association 2009).

Executive Order (EO) 13212, signed in 2001, states that the production and transmission of energy in a safe and environmentally sound manner is essential to the well-being of the American people. A DOE report postulates that wind power can provide 20% of the nation's electricity by 2030 (DOE 2008). The DOE report finds that achieving a 20% wind contribution to U.S. electricity supply would:

- Reduce carbon dioxide emissions from electricity generation by 25% in 2030;
- Reduce natural gas use by 11%;
- Reduce water consumption associated with electricity generation by 4 trillion gallons by 2030;
- Increase annual revenues to local communities to more than $1.5 billion by 2030; and
- Support roughly 500,000 jobs in the United States, with an average of more than 150,000 workers directly employed by the wind industry.

Additionally, the State of Nevada has recognized the need for new and diverse energy resources, including renewable energy generation options. The Nevada Renewable Portfolio Standard (RPS) (Nevada Revised Statutes [NRS] 704.7821) was revised on July 1, 2009, by Senate Bill 358 to state that by calendar year 2025 no less than 25% of the total amount of electricity sold by NV Energy to its retail customers in Nevada must be from renewable energy resources. NV Energy is expecting to acquire renewable energy from multiple generating facilities to meet, at a minimum, the mandated RPS target of 12% of retail sales coming from renewable resources in 2009–2010, 15% in 2011–2012, 18% in 2013–2014, 20% in 2015–2019, 22% in 2020–2024, and 25% in 2025.

As part of meeting the Nevada RPS, NV Energy has entered into a Power Purchase Agreement (PPA) with SVW to purchase 149.1 MW of wind energy produced from the SVWEF if it is constructed. Therefore, an additional purpose of this project is to meet the need to fulfill the production of 149.1 MW as required under the PPA.

1.3 Preliminary Issues

Coordination with relevant stakeholders (agencies or groups identified as having jurisdiction or special resource knowledge) was conducted in order to identify potential issues of concern relating to the development of the SVWEF. As a result of a stakeholder meeting conducted on October 20, 2008, and a BLM interdisciplinary scoping meeting conducted on March 9, 2009, with BLM and the Nevada

Department of Wildlife (NDOW), the following issues were identified warranting further review to determine whether they require detailed analysis.

- Concerns regarding whether geotechnical studies and excavation for turbine foundations associated with the alternatives would affect the water source for vegetation in the Swamp Cedar Area of Critical Environmental Concern (ACEC) were raised.
- Concerns were expressed that the proposed wind energy facility would impact pronghorn antelope (*Antilocapra americana*) habitat.
- Concerns were expressed that the proposed wind energy facility would impact bird and bat species in Spring Valley.
- Concerns were expressed that the proposed wind energy facility would impact the Southwest Intertie Project (SWIP) 500-kV utility corridor.
- Concerns were expressed that the proposed wind energy facility would impact the Bastian Creek range restoration project, completed in 2007.
- Concerns were expressed that the proposed wind energy facility would impact grazing uses in the Majors and Bastian Creek Allotments.
- Concerns were expressed that the proposed wind energy facility would impact recreation opportunities and the physical and social setting of the Loneliest Highway Special Recreation Management Area (SRMA).
- Concerns were expressed that the proposed wind energy facility would impact greater sage-grouse (*Centrocercus urophasianus*) habitat and active leks around the project area.
- Concerns were expressed that the proposed wind energy facility would impact pygmy rabbit (*Brachylagus idahoensis*) habitat.
- Concerns were expressed that the proposed wind energy facility would impact the viewshed of Great Basin National Park (GBNP).
- Concerns were expressed that the proposed wind energy facility would impact the visual integrity of the historic values in Spring Valley.
- Concerns were expressed that the proposed wind energy facility would exceed the BLM Visual Resource Management (VRM) objectives for the project area.
- Concerns were expressed that the proposed wind energy facility would result in potential impacts to Native American burial sites.
- Concerns were expressed that the proposed wind energy facility would result impacts to the E ½ of Section 12 within the proposed project area, which has been classified for Desert Land Entry (BLM 2008b).

These issues have been addressed in Chapter 3, Affected Environment, and, as necessary, Chapter 4, Environmental Consequences.

2.0 PROPOSED ACTION AND ALTERNATIVES

The previous chapter presented the purpose of and need for the proposed project, as well as the preliminary issues and concerns identified as needing additional review. To meet the purpose of and need for the proposed project and resolve the issues identified, the BLM has determined that the Proposed Action, one Alternative Action, and a No-Action Alternative are necessary for detailed analysis. The potential environmental consequences from the Proposed Action, Alternative Action, and No-Action alternatives are analyzed in Chapter 4 for each of the necessary resources identified in Chapter 3.

BLM's approach to developing alternatives for the SVWEF was based on those issues and resources of concern identified during site specific studies, BLM internal scoping, stakeholder presentations, and the public comment period on the initial draft EA. Additionally, the wind energy potential and the need defined by the power purchase agreement were considered. The Proposed Action was developed by the SVW and the BLM following completion of wind studies and required environmental studies. The Proposed Action was developed to avoid issues identified during completion of environmental studies and BLM scoping, as well as to take advantage of wind energy potential. The Alternate Development Alternative was developed following the public comment period on the initial draft EA. Under this alternative, the overall project area boundary was reduced in size; the northernmost array of WTGs was removed, and WTGs were added to the remaining arrays in order to avoid sensitive resources identified in the north of the project area and to continue to meet the needs of the PPA with NV Energy.

Each alternative meets the purpose and need for the project and includes 75 WTGs in order to achieve the 149.1 MW required by the PPA with NV Energy. Each alternative also includes a need for the mineral materials permit and their ROW request for the Osceola switchyard. The BLM has identified the Alternate Development Alternative as its preferred alternative.

DOE's Proposed Action is to grant a loan guarantee to John Hancock Life Insurance Company, as Lender-Applicant, with SVW for construction and startup of the SVWEF and to comply with its mandate under EPAct 05 by selecting projects that meet the goals of the act.

2.1 Proposed Action

SVW proposes to construct, operate, and maintain a 75-WTG wind generation facility within the approximately 8,565-acre project area; short-term disturbance would total approximately 336.9 acres, and long-term disturbance would total 111.1 acres. The SVWEF would produce up to 149.1 MW that would go into the existing NV Energy system. The Proposed Action consists of the construction, operation, and decommissioning of WTGs and associated facilities necessary to successfully generate the 149.1 MW allowed under the IA and agreed to in the PPA. If approved, the BLM would grant a long-term 30-year ROW for the project. After which time, the project would either be decommissioned or the applicant could request an extension, which would require consideration of additional NEPA compliance requirements. A short-term mineral materials permit would also be issued for Gravel Pits A and B.

The Proposed Action incorporates the requirements of all applicable federal, state, and local laws, regulations, and permits, as specified in the POD. The Proposed Action also incorporates all applicable mitigation measures in Chapter 5 of the PEIS (BLM 2005 [summarized in Table 6.2-1]) and Section 3 of the BLM RMP/FEIS (BLM 2008a). Design measures are included in the Proposed Action to reduce the impacts to sensitive resources. These built-in measures include stormwater pollution prevention measures, weed control, proper waste disposal, and approved revegetation and reclamation methods; these are discussed in the POD and presented as an integral part of the Proposed Action.

2.1.1 Wind Energy Facility Construction

Construction of a wind project would be performed in accordance with applicable codes, laws, and engineering requirements. The actual long-term ground disturbance of the WTGs and plant infrastructure (civil and electrical) would be approximately 1.3% of the total project area. Construction begins with installation of civil improvements, including site laydown areas for turbine and tower deliveries, access roads, underground runs for electrical cabling, turbine foundations, and crane pads for erection of the turbines. The second construction phase, in which some of the work would proceed in parallel with the civil works, includes installation of the electrical hardware (including cabling), construction of the Osceola switchyard, Spring Valley substation and pad-mount transformers, O&M building, and erection of the turbines. The third and final construction phase includes mechanical completion of all WTGs, substation and switchyard, and other facilities, followed by commissioning and testing of each turbine, utility interconnection, testing of the electrical system, and restoration of temporary construction areas, laydown areas, and turbine crane pads. Table 2.1-1 outlines a general construction schedule for the project.

Table 2.1-1. Anticipated Project Construction Schedule

Task	Schedule
Engineering work starts	3rd quarter 2010
Construction mobilization	4th quarter 2010
Commence civil works (roads, underground electrical, foundations)	4th quarter 2010
Turbine deliveries commence	2nd quarter 2011
Main power transformer delivered	2nd quarter 2011
Turbine deliveries completed	3rd quarter 2011
Substation and switchyard completed	3rd quarter 2011
Turbine commissioning, testing, and commercial operation	3rd quarter 2011
Wind energy facility commercial operation date	4th quarter 2011

2.1.1.1 WIND ENERGY FACILITY COMPONENTS

The principal components of the SVWEF would consist of WTGs, an underground electrical collection system for collecting the power generated by each WTG, an electrical substation and switchyard, access roads, an O&M building, temporary laydown and storage areas, a concrete batch plant, a sand and gravel source, fiber-optic communications, one permanent meteorological (MET) tower, three radar units, and two microwave towers. The short-term (the period from beginning of construction until reclamation) and long-term disturbance (the duration of the project) areas for each of these components are described in Tables 2.1-2 and 2.1-3. The project area totals 8,565 acres, all of which are on BLM land covered by the requested ROW for the Proposed Action. This is to allow for the necessary set back distances and spacing between individual WTGs and linear arrays. The total area estimated for use by the wind energy facility (including both short- and long-term disturbance) is 448.0 acres, or 5.2% of the total ROW.

Table 2.1-2. SVWEF Components: Maximum Short-Term Disturbance Summary Table, Based on Construction of the Proposed Action

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Short-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	400[1]	N/A	217.5	0.025
Laydown, batching plant, and parking area	820	530	10.0	0.001
Access roads	146,939	40	134.9	0.016
Collection system	143,450	20	65.9	0.008
Fiber-optic line[2]	390	20	0.18	NA
Radar fiber-optic line	500	20	0.23	0.000
Gravel Pits A & B and access[3]	660	660	10.0	0.001
Footprint overlap[≠]	N/A	N/A	−101.85	−0.012
Total			**336.9**	**0.039**

[1] This measurement represents the diameter of the disturbance area.

[2] Outside project area but contributes to overall disturbance footprint.

[3] 10.0-acre Gravel Pit B is an offsite existing disturbance and is not included in the overall disturbance acreage.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

Table 2.1-3. SVWEF Components: Maximum Long-Term Disturbance Summary Table, Based on Construction of the Proposed Action

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Long-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	75[1]	N/A	22.5	0.003
Access roads (add 2 radar access roads – 0.23 acre each)	146,939	28	95.0	0.011
MET tower	50[1]	N/A	0.1	0.000
Spring Valley substation, Osceola substation, and O&M building (includes two microwave towers)	1,080	805	20.0	0.002
Radars	25	35	0.02	0.000
Fence[2]	34,470	12	9.5	NA
Footprint overlap[≠]	N/A	N/A	-36.0	-0.004
Total			**111.1**	0.013

[1] This measurement represents the diameter of the disturbance area.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

[2] Outside project area but contributes to overall disturbance footprint.

2.1.1.2 PRECONSTRUCTION AND CONSTRUCTION ACTIVITIES

An overview of construction activities necessary for the development of a wind energy project is described in BLM's PEIS (BLM 2005). The following preconstruction and construction activities are specifically relevant to the proposed SVWEF.

2.1.1.2.1 Geotechnical Investigations

Geotechnical investigations have been completed within the project area to confirm constructability and identify gravel sources (Kleinfelder 2009a, 2009b). Prior to construction, additional geotechnical investigations would be completed at each turbine location, and throughout the project area as needed, to identify any site specific construction issues and prepare final foundation design and necessary BMPs. Vehicle travel for geotechnical investigation would occur on existing roads and would require minimal drive and crush for no more than 0.25 mile from existing roads.

2.1.1.2.2 Site Preparation

The center point, centerline, and exterior limits of the principal components of the SVWEF would be surveyed and clearly marked by stakes and flagging at 200-foot intervals, or closer if necessary to maintain a sight line. Construction activities would be confined to these areas to prevent unnecessarily impacting sensitive areas. Stakes and flagging that are disturbed during construction would be repaired or replaced before construction continues. Stakes and flagging would be removed when construction and restoration are completed.

A 3.6-mile-long (19,245-foot-long) fence would be constructed outside the northeast corner of the project area to keep cattle in the Bastian Creek Allotment from entering the project area during construction and rehabilitation. This would include a fence surrounding the adjacent Southern Nevada Water Authority (SNWA) 80-acre parcel, which would be used as a "water lot" to allow better management of the water source on its property. The lot would have access gates from inside and outside the property. The new fence would also skirt the edge of the Swamp Cedar ACEC to the south and east and tie in with existing fences associated with management of the grazing allotment. The fence would be a standard BLM four-wire fence built to meet specifications for cattle and wildlife (BLM Manual 1737). Fence construction would involve the use of pick-up trucks and post-hole diggers attached to a tractor. No new road construction would be included for the fence, but a two-track route parallel to the fence would result from repeated travel.

On the west side of the project area, a 5.6-mile-long (29,329 foot-long) fence would be constructed to connect with existing fences in order to keep cattle in the Majors Allotment from entering the project area during construction and rehabilitation. The fence specifications would be the same as those for the Bastian Creek fence described above.

Vegetation would be mowed to become part of the salvaged topsoil. Vegetation clearing would be accomplished using bulldozers, road graders, or other standard earth-moving equipment. Vegetation would be cleared from temporary use areas for the laydown area, crane pads, and access roads. In all areas of short- and long-term disturbance where vegetation would be mowed, all available topsoil would be removed and then bermed around temporary construction areas. Topsoil from permanently disturbed areas would be removed and stored at other locations where it can be seeded and used for interim reclamation purposes. Stockpiles would be seeded in the interim with a BLM-approved seed mix to prevent weeds and help with reclamation success and would be maintained for final reclamation purposes. In temporarily disturbed areas where the ground is relatively flat, equipment would be laid on top of the mowed vegetation and would not require any grading.

2.1.1.2.3 Wind Turbine Layout, Installation, and Construction Processes

Since wind turbine technology is continually improving and the cost and availability of specific types of turbines vary from year to year, a representative range of turbine types that are most likely to be used for the project are listed in Table 2.1-4. Seventy-five turbine sites have been identified that provide not only the highest wind speeds but also the most consistent wind resource, which provides the highest overall energy output and reliability. Figure 2.1-1 presents the site layout for all 75 turbines and associated infrastructure. Each turbine experiences a small percentage of parasitic load, meaning that each turbine typically consumes between 5 and 10 kilowatts of power during operation. Additionally, a small amount of power is consumed by the substation, further reducing the amount of power available for output. Therefore, no matter which turbine is selected, no more than the maximum 149.1 MW agreed to under the PPA would be output into the system and somewhat less than that amount may be produced if the 1.8-MW turbines were selected.

Table 2.1-4. Wind Turbine Specifications

Turbine	Hub Height	Rotor Diameter	Total Height	Rated Capacity Wind Speed	Rotor Speed	Tower Base Diameter
2.3-MW Siemens	80 m	101 m	130.5 m	12–13 m/s	6–16 rpm	14.76 feet (4.5 m)
2.0-MW Gamesa G90/G97	78 m	90 m / 97 m	125 m / 126.5 m	15 m/s	9–19 rpm	13 feet (4 m)
RePower 2.0	80 m	92.5 m	126 m	12 m/s	9–18 rpm	13 feet (4.0 m)
1.8-MW V90 Vestas	80 m	90–100 m	125 m	12 m/s	9–14.9 rpm	< 15 feet

Notes: m/s = meters per second; rpm = rotations per minute.

Turbines would be placed in a series of east-west-oriented rows (or arrays) to best use Spring Valley's north-south wind flows. North-south-oriented rows cannot be used because they would reduce power generation to levels that the project would no longer be commercially viable. Turbines within each array would be connected by gravel surface access roads and underground 34.5-kV collection circuits. To minimize downwind array losses, spacing between turbine rows would be at least 10× rotor diameters (RD) (1,010 m) and 2.4 to 3.5 RD (242–354 m) for in-row spacing. Turbine towers and foundations would be designed to survive a gust of wind more than 133.1 miles per hour (mph) with the blades pitched in their safest position. Turbine blade tip speed is variable and would not exceed 90 meters per second (m/s) or 201 mph. Turbine foundations would be approximately 8 feet deep, with a projection of approximately 6 inches above final grade, and would use approximately 350 cubic yards of concrete. Each tubular steel tower would have a maximum 15-foot-diameter (4.5-m-diameter) base.

Three to five WTGs can be erected weekly. Typically, construction would occur during the weekday between sunup and sundown (approximately 6 a.m. to 6 p.m.). However, if schedule delays occur, work may be extended into the weekend or overnight. If work is completed overnight, temporary lighting would be used in the immediate work areas. Construction is expected to commence in the later part of 2010, with the final mechanical completion, commissioning, and testing expected to be completed by the third quarter of 2011.

Each turbine would require a 400-foot-diameter (2.9-acre) temporary construction area, including all topsoil berms, and a permanent 75-foot-diameter (0.3-acre) area for the tower within the temporary construction area. Clearing and grading would be accomplished using bulldozers, backhoes, and road graders.

The temporary work area for each site would be used for the crane pad, equipment laydown, and other construction-related needs. Within the area of temporary disturbance, an area of 75 × 150 feet with a maximum slope of 1% is required to support the crane used in lifting and erecting the turbine components. The crane pad would not be surfaced with concrete but would be compacted to provide a stable base for safe operation of cranes. To meet the necessary compaction standards as determined by geotechnical studies, it may be necessary for heavy weights to be dropped on the pad, and graders and bulldozers may be used to achieve the required levels and grades.

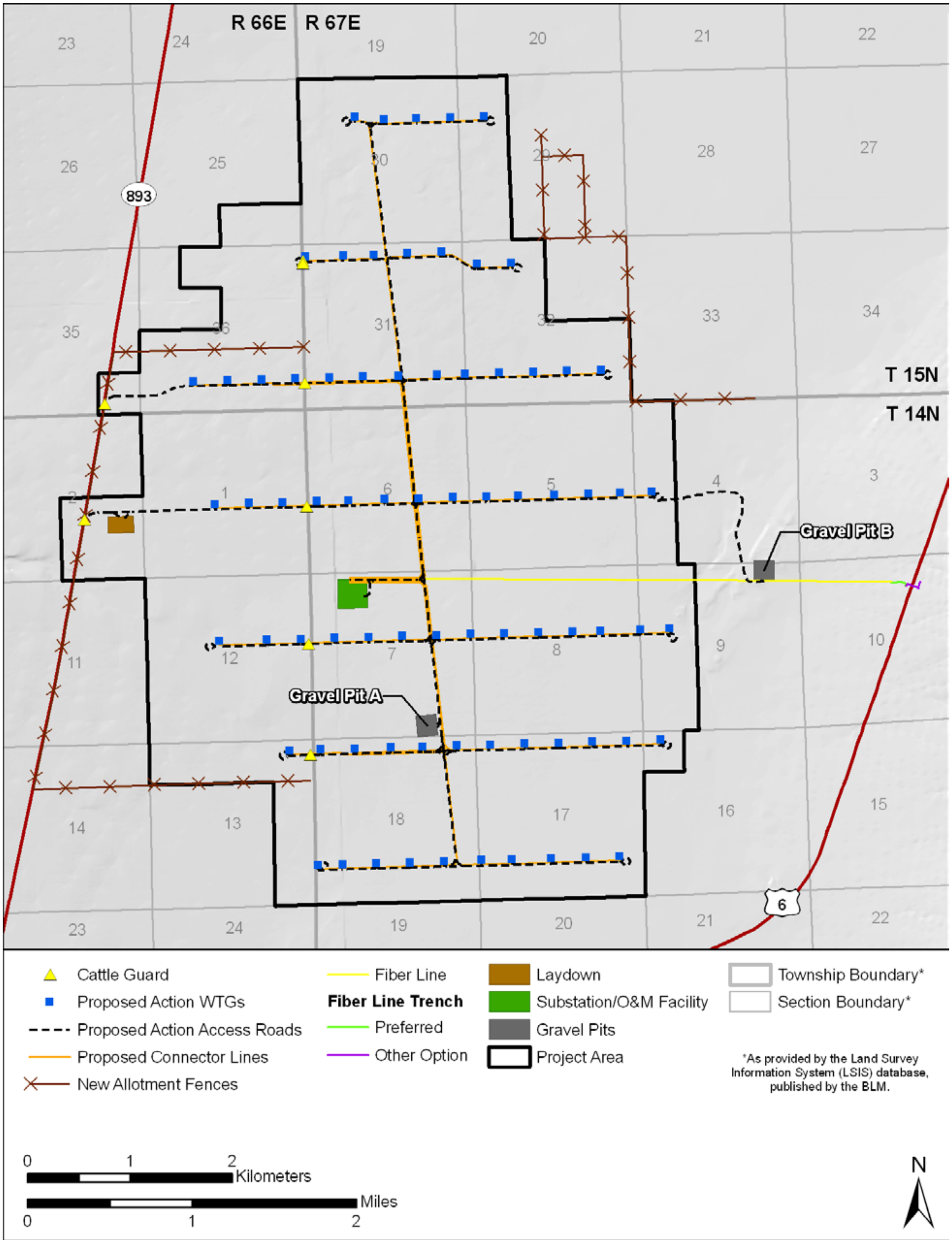

Figure 2.1-1. Proposed Action site layout.

Within the temporary construction area, permanent foundations are excavated, compacted, and constructed of structural steel and reinforced concrete designed to meet turbine supplier and geotechnical engineer's recommendations. The WTGs' freestanding tubular towers would be connected by anchor bolts to the concrete foundation at the pedestal. The towers would have a maximum 15-foot-diameter base. The area immediately surrounding the concrete pedestal would be covered with a gravel ring, followed by roads to provide a stable surface for future maintenance vehicles accessing the turbine and as required by electrical codes. After construction, all temporary disturbances associated with the turbine installation would be reclaimed as described in Appendix A, Restoration and Weed Management Plan. Additionally, gravel would be removed from temporary use areas and disposed of in an approved landfill or used for fill in other parts of the project area as appropriate.

2.1.1.2.4 Wind Turbine Components and Assembly

WTGs consist of three main components: the turbine tower, the nacelle, and the rotor, which consists of the hub and the blades. The nacelle is the portion of the wind turbine mounted at the top of the tower, and it houses the generator, converter, gearbox, and electronic control systems. Turbine hub heights and RD for the potential turbines may vary but for purposes of analysis would not exceed the 2.3-MW turbine specifications.

The towers would be a tapered tubular steel structure manufactured in three or four sections, depending on the tower height, and approximately 15 feet (4.5 m) in diameter at the base. The towers would be the manufacturer's standard off-white/matte gray color. A service platform at the top of each section would allow for access to the tower's connecting bolts for routine inspection. A ladder inside the structure would ascend to the nacelle to provide access for maintenance. The tower would be equipped with interior lighting and a safety glide cable alongside the ladder. The towers would be fabricated and erected in sections.

The nacelle steel-reinforced fiberglass shell houses the main mechanical components of the WTG; the drive train, gearbox, and generator control the electronics and cables. The nacelle would be equipped with an anemometer that signals wind speed and direction information to an electronic controller. A mechanism would use electric motors to rotate the nacelle and rotor to keep the turbine pointed into the wind to maximize energy capture.

Modern wind turbines have three-bladed rotors. The diameter of the circle swept by the blades would be no more than 323 feet (101 m). If the maximum number of 75 turbines were constructed, a total rotor-swept area of 600,584.3 m^2 (148.4 acres) would be used. Generally, larger WTGs have slower rotating blades, but the specific rotation per minute (rpm) values depend on aerodynamic design and vary between machines. Based on the turbines considered, the blades would turn at no more than 19 rpm.

Each turbine is equipped with a state-of-the-art control system to monitor variables such as wind speed and direction, air and machine temperatures, electrical voltages, currents, vibrations, blade pitch, and yaw (side-to-side) angles.

Power generation controlled at the bus cabinet inside the base of the tower include operation of the main breakers to synchronize the generator with the grid as well as control of ancillary breakers and systems. The control system would always operate to ensure that the machines operate efficiently and safely.

Each turbine would be connected to a central Supervisory Control and Data Acquisition (SCADA) system. The SCADA system allows for controlling and monitoring individual turbines and the wind energy facility as a whole from a central host computer or a remote personal computer. The SCADA system transmits critical information from the turbine via fiber optics to a central control server located in the O&M building and to all other locations as required. The SCADA system would also send signals to a fax, pager, or cell phone to alert operations staff.

Turbines would be equipped with a braking system to stop or release the rotor. The braking system is designed to bring the rotor to a halt under all foreseeable conditions. The turbines also would be equipped with a parking brake used to keep the rotor stationary during maintenance or inspection.

2.1.1.2.5 Temporary Construction Workspace, Yards, Materials Storage, and Staging Areas

One 10-acre temporary laydown area with a batch plant and parking area would be required to stage and store construction equipment and materials, to prepare concrete, and for construction staff parking (see Figure 2.1-1). During construction, the laydown area would be fenced and gated to control access. Micrositing would be completed as practicable to avoid winterfat (*Krascheninnikovia lanata*) dominated sites. The laydown area may be graveled, depending on the soil conditions and project needs. After construction, all temporary disturbances associated with the laydown area would be reclaimed.

2.1.1.2.6 Access Roads

The project scope would include a network of 28-foot-wide roads that would provide access to each turbine location, the substation, the switchyard, the MERLIN radar systems, and the project's O&M building. During the course of construction, access roads would have an additional temporary disturbance of up to 40 feet (68 feet wide total) to facilitate the travel of large trucks and cranes. These disturbed areas would be graded and compacted for use and then decompacted and stabilized at the conclusion of the project. Whenever possible, such as the main north-south access road, existing roads would be used and improved to avoid additional disturbance. In addition to the crane travel paths, the underground collection system and fiber-optic lines would also parallel the access roads. Micrositing of access roads would be completed as practicable to avoid winterfat-dominated sites.

Public access roads would incorporate existing BLM standards regarding road design, construction, and maintenance such as those described in the 2005 PEIS/ROD (BLM 2005), BLM Manual 9113 (BLM 1985), and the *Surface Operating Standards for Oil and Gas Exploration and Development* (i.e., the Gold Book) (U.S. Department of the Interior and the U.S. Department of Agriculture 2007). All roads would be built at ground level. Additionally, any public access roads would conform to all applicable county road regulations, as well as the Nevada State Fire Marshal's fire safety regulations. Roads would not be closed to the public except during construction for safety purposes. Off-road travel is prohibited in the area and would not be allowed during any portion of the project.

A new, long-term, approximately 0.5-mile-long site access road to the first WTG in that WTG array would be constructed approximately 0.3 mile from the existing transmission line access road; a second permanent access road, approximately 0.6 mile long, to the first WTG in that WTG array would be constructed approximately 0.7 mile north of the primary access road. During the construction phase of the project, site and turbine access roads would be up to 68 feet wide to facilitate the travel of large trucks and heavy equipment, ditching, and topsoil storage. This would be reduced to 28 feet after construction is completed to include the permanent driving surface and ditches for maintenance access during the operations phase; the remaining 40-foot-wide area of short-term disturbance would be reclaimed. The two long-term site access roads would enable construction and post-construction operational personnel to easily access the center and northern sections of the project area, including the Spring Valley substation and Osceola switchyard.

There would be up to a total of 27.8 miles of new access roads, including the two site access roads described above and the turbine access roads. All new access roads where a crane walk would be required would be 68 feet wide during the construction phase and 28 feet wide during the operations phase and would include a turnaround at the end of each turbine array to allow for large-vehicle maneuvering. Access roads for gravel pits (1.1 miles) would be along existing roads that would be improved, with a maximum expansion to 28 feet wide. Portions of the road exclusively for gravel pit access would be reclaimed entirely. Remaining sections of road that would be used for other purposes such as administrative access would be restored back to their original condition. There would be up to 95.0 acres of disturbance from new road construction that would not be restored until after decommissioning. The final long-term roads would be compacted and surfaced with gravel aggregate from BLM-permitted sources.

All roads would remain for the life of the project; however, road widths would be reduced to 28 feet through restoration activities following construction as described above. There are four locations where access roads cross the existing allotment fence line. Cattle guards would be installed at each of these fence line crossings. Cattle guards or gates would also be placed along the new fence line at access roads into the project area from State Route (SR) 893. After decommissioning, project roads would be reclaimed unless they are being used for other permitted activities.

2.1.1.2.7 Electrical System

The existing NV Energy 230-kV transmission line, which passes from east to west through the project site, would be the primary power transmission line for the SVWEF. A 34.5-kV underground electrical collector system would be installed to connect the turbines to the Spring Valley substation. The power would be stepped up by the main transformer at the Spring Valley substation to a 230-kV high-voltage (HV) system. The HV system would then be interconnected to the Osceola switchyard and the grid. For the connection of the Osceola switchyard to the existing transmission line, there would be a 400-foot overhead span from the existing transmission line connecting to the Osceola switchyard. In addition, there would be a 70-feet overhead span (no poles would be required) connecting the Osceola switchyard to the Spring Valley substation. Approximately 27.2 miles of collector cables would be placed underground in trenches that are adjacent to access roads. Along turbine strings, between one and two trenches would be used to place collector cables. Trenches would be placed on one or both sides of the access road, 30 feet from the road centerline as needed. Along the north-south road alignment, between two and four trenches would be used to place collector cables; two trenches would be on either side of the access road with the first trench 30 feet from road centerline and the second trench 50 feet from road centerline. Along the stub road from the north-south collectors to the substation, seven trenches would be needed. Temporary disturbance for trenches would be up to 20 feet wide (to accommodate trenching and stockpiling) and 3 to 5 feet deep. The total temporary disturbance for the collection system would be 65.9 acres. Following placement of the cables in the trenches, the trenches would be backfilled, any topsoil set aside during excavation would be placed on top, and the area would be restored as described in the Restoration and Weed Management Plan (see Appendix A).

Vaults and splice boxes would be placed aboveground at locations as needed. There would be several aboveground junction boxes that would be used in various locations. Junction boxes are approximately 4 feet wide × 6 feet long × 4 feet high.

Additionally, the primary north-south access road would cross under the current power line corridor that runs east to west across the project area. The power line corridor contains four lines; one 230-kV transmission line owned by NV Energy, one 230-kV transmission line owned by Los Angeles Department of Water and Power, one 69-kV transmission line owned by Mt. Wheeler Power, and one low-voltage distribution line owned by Mt. Wheeler Power. Depending on the final roadway design and elevations, one or more of these lines may need to be elevated to provide adequate vertical clearance over cranes, concrete trucks, and other construction equipment. To raise the conductors, new structures may be installed near the road, or existing structures may be replaced with taller poles. Temporary ground disturbance would be approximately 7 square feet and permanent ground disturbance would be approximately 3.5 square feet for each pole installed. The maximum number of new poles required would be approximately eight for a total of 0.001 acre of temporary disturbance and 0.0006 acre of permanent disturbance.

Spring Valley Substation

A 280 × 415–foot substation would be located adjacent to the O&M building within the 20-acre facility area. A 230-kV aboveground connector transmission line would connect the Spring Valley substation to the Osceola switching station, which would then connect to the NV Energy 230-kV transmission line. No disturbance outside the 20-acre facility area is expected. Construction of this substation would last approximately four to six months and would involve two primary stages: 1) site preparation and 2) structural and electrical construction.

Construction of the substation would begin with clearing of vegetation and organic material from the site. The site would then be graded to subgrade elevation; exporting and importing of suitable materials may be necessary. Structural footings and underground utilities, along with electrical conduit and grounding grid, would be installed, followed by aboveground structures and equipment. A chain-link fence would be constructed around the new substation for security and to restrict unauthorized persons and wildlife from entering the substation. The site would be finish graded and gravel surfaced, and reclamation would be completed to minimize the visual appearance of the substation.

Control buildings would be added to the substation and would more than likely be constructed of prefabricated material. Major equipment to be installed inside the control buildings would consist of relay and control panels, alternating current and direct current load centers to provide power to equipment inside and outside the control building, a battery bank to provide a back-up power supply, a heating/cooling system to prevent equipment failure, and communications equipment for remote control and monitoring of essential equipment.

Steel structures would be erected on concrete footings to support switches, electrical buswork, instrument transformers, lightning arrestors, and other equipment, as well as termination structures for incoming and outgoing transmission lines. Structures would be fabricated from tubular steel and galvanized or painted a BLM-approved color to blend in with predominant vegetation and soil types. Structures would be grounded by thermally welding one or more ground wires to each structure.

Major equipment would be set by crane and either bolted or welded to the foundations to resist seismic forces. Oil spill containment basins would be installed around major oil-filled transformers and other equipment. Smaller equipment, including air switches, current and voltage instrument transformers, insulators, electrical buswork, and conductors would be mounted on the steel structures.

Control cables would be pulled from panels in the control building, through the underground conduits and concrete trench system, to the appropriate equipment. After the cables are connected, the controls would be set to the proper settings, and all equipment would be tested before the transmission line is energized.

Osceola Switchyard

The Osceola switchyard would be constructed adjacent to the Spring Valley substation within the 20-acre facility area. Clearing and grading for the substation would also be used for the Osceola switchyard. The BLM would issue a separate ROW grant for the switchyard and associated facilities, which would be transferred from SVW to NV Energy after construction. This switchyard would be 510 × 360 feet. This switchyard would connect to the existing NV Energy 230-kV line and would not be decommissioned with the rest of the project. Construction of this switchyard would last approximately seven to 10 months and would involve the same two primary stages (site preparation and structural and electrical construction) as were previously described for the Spring Valley substation; however, reclamation is not anticipated for this site.

Associated with the switchyard, NV Energy would need to reconfigure the existing 230-kV transmission line directly north of and adjacent to the Osceola switching station by installing two new single pole angle structures and modifying two existing two-pole tangent structures. This work would include excavations for two poles (14 square feet temporary; 7 square feet permanent) and eight anchors (200 square feet temporary; negligible permanent). Modifications to the existing tangent structures would not require any ground clearing, grading, or excavation, but drive and crush of vegetation would be completed by the line trucks setting up next to the structures. Total temporary disturbance for reconfiguration of the current transmission line would be 0.005 acre and permanent disturbance would total 0.0002 acre. All reconfiguration work would be performed within the existing transmission line easement.

2.1.1.2.8 Communications System Requirements (Microwave, Fiber Optics, Hard Wire, Wireless, Radar)

Fiber-optic cable for communications between the turbines and the O&M facility would be necessary and would be placed in the collector system trenches. Following placement of the cables, the trench would be backfilled, any topsoil set aside during excavation would be placed on top, and the area would be restored.

A 100-foot-tall microwave tower would be located within the Osceola switchyard area. The tower would be placed where it has a direct line of site, and WTGs would not interfere with it. A fiber-optic cable would be placed on NV Energy’s 230-kV line structures from the Osceola switching station, east to the last structure on the west side of U.S. Route 6/50. New conduit would be installed to carry the fiber from this structure to an existing telecommunications vault on the west side of U.S. Route 6/50. The conduit would be placed in the 230-kV line ROW running east and then south in the telecommunications ROW to the existing vault on the west side of U.S. Route 6/50.

Two 9-foot-tall permanent on-site MERLIN radar units (radar units) would be installed to analyze the presence and movement of birds and bats within the project area. Radar units would be placed in the northeastern and southeastern portions of the project area. Micrositing of each unit would occur to minimize resource impacts, to ensure the greatest possible accuracy and overall coverage of the project area, and to maximize the ability of the radar units to detect bats from Rose Guano Cave prior to them reaching the project area. These radar units would run full time and be connected directly into the SCADA system so that radar data can be directly communicated to the turbines. Each radar unit would be placed on a 20 × 30–foot concrete pad with a 5-foot apron of gravel. A 4-foot-tall hurricane fence would be installed around each of the radar units. Both radar unit access roads would be 16 feet wide and approximately 500 feet long to connect to the nearest WTG access road. A fiber-optic cable would be buried in a trench within 20 feet of the access road and would connect to the nearest WTG collector system trench. Temporary disturbance for trenches would be up to 20 feet wide (to accommodate trenching and stockpiling) and 3 to 5 feet deep. The total temporary disturbance for the fiber-optic line would be 0.23 acre.

A mobile VESPER fixed-beam wertical profile radar would also be used to provide more detailed target categorization than the MERLIN radar system, specifically, differentiation and identification of birds, bats, and insect targets based on measurement of wingbeat frequencies as targets pass through the radar beam. The location of the VESPER unit would be dynamic for the first several months of the study campaign and would be moved throughout the project area via pick-up truck. No new disturbance would be necessary; the VESPER unit would be placed on existing disturbance only.

Additionally, an infrared beam-break system or remotely accessible bat acoustic detector would be placed at the entrance of the Rose Guano Cave to provide more detailed bat arrival and departure data. The infrared beam-break system would be installed on a frame placed just inside the perimeter of the cave entrance. Alternatively, the acoustic detector device would be placed in a container near the cave entrance and would be solar powered, accessed remotely and wirelessly, and elevated on a pole if needed. The final selection of instrumentation and construction details would be determined after a site visit and assessment.

2.1.1.2.9 O&M Building

An O&M building within the 20-acre facility area would be located in the southern portion of the project area (see Figure 2.1-1). The O&M building and yard would be constructed to store critical spare parts and provide a building for the operations and maintenance services. A concrete foundation would be required for the maintenance facility, and the area immediately surrounding the building would be covered with gravel for vehicle parking. Any area within the fence not covered by concrete would be covered with gravel to minimize erosion and surface runoff. A permanent 7-foot-high security fence surrounding the O&M facility and directional lighting would be installed. A 100-foot-tall microwave tower would be sited within the 20-acre O&M facility area. The tower would be placed where it has a direct line of site to the communication provider’s facilities. The tower would provide temporary and permanent communications for the O&M building and substation.

Because the 20-acre substation and O&M parcel lies near the northern edge of an alluvial fan drainage basin, the grading plan for the parcel would include a berm/levee around the west, north, and south sides. The west side of the berm would be approximately 5 feet above existing grade, tapering to 3 feet above existing grade along the north and south sides. The berm may feature a trapezoidal cross-section, 16 feet wide at the top width with 3:1 (H:V) side slopes along the outside embankment. Construction materials for the trapezoidal berm would include soil from excavation at the 20-acre substation parcel and erosion control features such as riprap or an alternative engineered erosion control product. The berm would be constructed to blend in color and texture with the existing, natural surroundings.

2.1.1.2.10Gravel, Aggregate, and Concrete Needs and Sources

Construction of access roads, facility foundations, and temporary laydown areas associated with the Proposed Action would require access to sand and gravel. Up to 14,875 cubic yards of sand, 152,562 cubic yards of gravel, and 7,500 cubic yards of cement are expected to be used during the course of construction. Sand and gravel sources within and adjacent to the project area have been identified by a construction contractor and would be permitted through a mineral materials permit issued by the BLM.

Gravel and concrete aggregate would come from two 10-acre locations—one within the project area (Gravel Pit A) and one outside the project area (Gravel Pit B) (see Figure 2.1-1). Some rock materials for making concrete would be purchased from an existing stockpile location. The materials would be trucked to the batching plant and placed into stockpiles. Access to the site outside the project area would be along an existing road. The existing road would be widened to 28 feet to accommodate haul trucks for the project. Cement would be delivered on trucks from a source to be identified and stored in two to five silos on-site. Approximately 540 tons of 5,000 per square inch concrete would be needed for each turbine foundation. Based on a maximum of 75 turbines installed and the additional needs for construction of the substation, switchyard, and O&M building, 40,500 tons of concrete would be used. Both gravel pits would be reclaimed following use based on the project restoration plan (see Appendix A).

2.1.1.2.11 Concrete Batch Plant

A 5-acre site within the laydown area would be allocated to install a batch plant for preparing and mixing the concrete used for the WTG foundations, transformer, and equipment foundations at the substation and switchyard, O&M building foundation and floor slab, and other project facilities (see Figure 2.1-1). Prior to installation of the batch plant facilities, a portion of the area would be covered with gravel. The batch plant complex would consist of a mixing plant, areas for sand and gravel stockpiles, and truck load-out and turnaround areas. The batch plant itself would consist of cement storage silos, water and mixture tanks, gravel hoppers, and conveyors to deliver different materials. During construction, materials would be taken from stockpiles and dumped into hoppers with front-end loaders, where they would be mixed together in the mixing plant and then loaded into ready-mix trucks in the truck loading area. The concrete would be delivered to each turbine site, the substation and switchyard, the O&M building, and other locations as needed using ready-mix trucks. Concrete ready-mix trucks would be washed out at designated locations that have been designed for that purpose. At those locations, all effluent would be contained, and refuse concrete would be reclaimed. Following completion of construction, all components of the batch plant would be demobilized, and the site would be reclaimed.

2.1.1.2.12 Water Usage, Amounts, and Source

Because no new water rights in Spring Valley are available, SVW would not drill a new well as part of the proposed project. All necessary water would be obtained through a temporary lease with an existing water rights holder in Spring Valley north of the project area, trucked to the site, and put to immediate use or held in tanks within the laydown area. A final agreement has been reached between SVW and the Church of Jesus Christ of Latter-Day Saints, an existing water rights holder in Spring Valley, for a temporary change in the manner and place of use of a portion of its irrigation water rights. The water used by the SVWEF would displace a similar volume of agricultural use during the construction period and accordingly, there would be no net increase in water diversion. The peak usage is estimated to be approximately 200,000 gallons per day. An elevated 30,000-gallon storage tank would be used at the water source. All water would be delivered by truck from the existing source, approximately 10 miles north of the project area, to the batch plant and project area. Up to 2,000 vehicle trips would be required for water delivery.

The largest needs for water are batching concrete for turbine foundations and dust suppression. Water would also be used for washing equipment, road maintenance/dust control, and potable water. The quantity of water needed by SVW during the construction period would vary from approximately 5 million gallons (15.3 acre-feet) under normal conditions to approximately 10 million gallons (30.7 acre-feet) under conditions of excessive drought and dry land. In order to achieve proper compaction of backfill at foundations, collection trenches, and road base material, water must be added. The amount of water necessary to reach an optimal value for compaction is variable and would depend on moisture conditions at the time of construction. The large range of water use is necessary to account for the potential conditions.

In normal conditions, a total of about 20,000 gallons of water per turbine would be needed for batching concrete; however, Pattern Energy may need to increase the moisture content by as much as 10%. Based on the maximum of 75 turbines, a total of 1,650,000 gallons of water would be needed for turbines. Of the remaining 8,350,000 gallons, ~60%–70% would be used for dust suppression, and the balance (~5,280 gallons a week) would be necessary for potable uses throughout both the construction period and during operations.

2.1.1.2.13 Construction Workforce Numbers, Needs, and Vehicles

On average, up to 175 workers would be employed during a 9- to 12-month construction period. At the peak of construction activity, as many as 225 workers would be employed. There are several trailer parks nearby (Majors Junction is the closest) that could provide temporary living facilities for construction personnel; there is also housing in Ely and Baker, Nevada. During construction, potable water and sanitary facilities at the site would be necessary to support the construction crews. Potable water during construction would consist of bottled water (5-gallon reusable containers); there would be a small non-potable water storage tank for restroom facilities. A temporary septic holding tank would be installed to support the restroom use at the laydown area.

Temporary facilities would be available at the laydown area, and permanent facilities would be available at the O&M building. All construction employees would be encouraged to carpool to the project area, and no more than 150 employee vehicles are anticipated to be on-site at any one time.

2.1.1.2.14 Construction Materials and Components Transportation

Trucks transporting turbines, towers, and other construction materials would travel along U.S. Route 50 and 93, accessing the project area directly from SR 893. Most of the materials and components would be delivered from the south along U.S. Route 93. The location of entry points to the project area for component delivery, construction workers, and operations would be completed through coordination with the Nevada Department of Transportation (NDOT) and White Pine County to ensure that there are no adverse impacts to local traffic patterns. During the construction phase, component and equipment deliveries would be directed to a single, controlled point of entry at the project main gate located off SR 893, at the laydown site. The second access road off of SR 893 would not be used for component and supply deliveries but for general construction traffic control.

Construction traffic would be restricted to the roads developed for the project. Use of existing unimproved roads would be for emergency situations only. Flaggers with two-way radios would be used, if deemed necessary by SVW, to control construction traffic and reduce the potential for accidents along project roads. Speed limits would be set commensurate with road type, traffic volume, vehicle type, and site-specific conditions as necessary to ensure safe and efficient traffic flow. A complete traffic management plan detailing on-site traffic management requirements and route transportation planning guidelines for the project is provided in Appendix B.

Construction of roads, facilities, and electrical/communication lines would occur at about the same time, using individual vehicles for multiple tasks. During the construction period, there would be approximately 150 daily round trips by vehicles transporting construction personnel to the site each day. There would also be approximately 6,402 trips of large trucks delivering the turbine components and related equipment to the project site spread over a 9- to 12-month period (Table 2.1-5).

2.1.1.2.15 Aviation and Project Area Lighting (Wind Turbines)

Turbines would be lit as required by the Federal Aviation Administration (FAA) and described in the project lighting plan (Appendix C). Based on FAA Obstruction Marking and Lighting Advisory Circular 70/7460-1K, no structural markings or alternative colors are proposed for the WTGs. For nighttime visibility, two flashing red beacons would be mounted on the nacelle. Lights would not be placed on all turbines; only those turbines along the periphery of the project area, and no more than 0.5 mile apart within each array, would have lights to mark the extent of the facility.

Table 2.1-5. Estimated Vehicle Trips outside the Project Area for Construction of the Proposed Action

Turbine Component Types	No. of Components Required per Turbine	No. of Components per Truckload	No. of Truckloads per Turbine
Tower sections	3.0	1.0	3.0
Blades	3.0	2.0	1.5
Nacelle	1.0	1.0	1.0
Rotor hub	1.0	2.0	0.5
Foundation components	3.0	1.0	3.0
Total Truck Loads/Turbine			**9.0**
Purpose of Truckload			**Number of Truckloads**
Deliver turbine components (75 turbines)			675
Deliver construction materials			4,000
Crane delivery and removal			450
Deliver electrical components			200
Deliver O&M building materials			50
Deliver pad-mount transformers			25
Deliver step-up transformer			2
Deliver collection system and transmission line materials			1,000
Total Large Truckloads			**6,402**

2.1.1.2.16 Site Stabilization, Protection, and Reclamation Practices

All restoration for the project would follow the guidance in the Restoration and Weed Management Plan (see Appendix A) and would occur after all construction activities are completed. Upon completion of the construction aspect of the project, stockpiled topsoil would be spread across the temporary disturbance areas. To re-establish healthy vegetation communities, a BLM-approved seed mix would be used. Reseeding would take place in accordance with specifications provided by BLM, and access to ROWs would be limited to the public, using gates and signs where necessary to allow for the germination and establishment of replanted sites.

2.1.1.2.17 Waste and Hazardous Materials Management

All construction-related waste would be transported to and stored within the temporary use area until collected for transport to a final landfill destination by a licensed hauler. Materials that can be recycled would be stored and transported separately. SVW would coordinate with the Ely landfill prior to the start of construction. Hazardous materials are typically limited for a project of this nature. However, the following materials are anticipated to be used or produced during construction and operation of the Proposed Action:

- Fuel (diesel and unleaded) for construction equipment and vehicles;
- Lubricants and mineral oils;
- Cleaners; and
- Industrial material.

SVW would obtain all necessary permits required for the transport, use, and storage of hazardous substances. In addition, these substances would be transported, stored, and, when necessary, disposed of in accordance with local, state, and federal laws and regulations.

Fuel, grease, and oil for equipment and vehicles would be stored at the temporary laydown area. If any spillage occurs, the area would be cleaned up in accordance with the requirement of the hazardous materials plan and applicable permit requirements. Fuel, oil, and other fluids used in construction equipment would be transferred directly from a service truck to construction equipment in the project area in accordance with the Spill Prevention Plan (SPP) (Appendix D). Use of turbine lube oil would be handled in accordance with any necessary permit requirements or hazardous materials plan. Any concrete left over would be buried (if approved by BLM) or hauled and disposed of at a permitted site. If buried, the BLM would consider ROWs and pending ROWs to ensure there is no interference with those actions prior to approval. Sanitary waste would be handled by a licensed sanitary waste vendor. For post-construction operations, a septic system would be installed for the O&M building.

2.1.2 Wind Energy Facility Operation

2.1.2.1 OPERATIONS, WORKFORCE, EQUIPMENT, AND FACILITY MAINTENANCE NEEDS

Once the project has been constructed, the SVWEF would be monitored and operated year-round by SVW and would have a permanent staff of 10 to 12 full-time technicians.

The computer control system for each turbine would perform self-diagnostic tests, allowing a remote operator to ensure that each turbine is functioning at peak performance. Routine maintenance activities, consisting of visual inspections, oil changes, and gearbox lubrication, would result in regular truck traffic on project access roads throughout the year. Project access roads would be graded as necessary to facilitate operations and maintenance. A minimum of one maintenance drive around to all turbines would be conducted each day, weather permitting. The substation would undergo weekly, monthly, and annual inspections. Scheduled maintenance of the substation would be on a scheduled program, depending on the type and number of components in the substation, interconnection and North American Electric Reliability Corporation requirements, and environmental conditions at the site. The transmission line interconnecting the substation and switchyard would be visually inspected monthly with more in-depth maintenance on an annual basis. The underground collection system would be visually inspected monthly and would also have scheduled maintenance tasks, again depending on the number and type of components.

The project roads would be used by site personnel to perform their inspection and maintenance activities as well as for purposes such as continued site restoration, basic and major turbine component repairs (may require crane access), electrical checks, environmental inspections, snow removal, and site tours.

There would be oil and hydraulic fluid stored at the site in the storage shed near the O&M building. This storage shed would include a secondary containment for storage of fluids. Such fuel storage would be in accordance with all local, state, and federal regulations and would be in small amounts (<50 gallons).

Lighting requirements during operations would be limited to the 20-acre facility and would be motion activated. There is no exterior lighting on the turbines other than the FAA lights at the top of the towers. If additional lighting is required for night activity, portable lights would be brought in on a temporary basis to allow repairs to be completed.

Annual maintenance activities that require the shutdown of turbines would be coordinated to occur during periods of little or no wind to minimize the impact to the amount of overall energy generation. Annual maintenance procedures would consist of inspecting WTG components and fasteners.

2.1.2.2 MAINTENANCE ACTIVITIES, INCLUDING ROAD MAINTENANCE

All equipment used in the operation of this project would be maintained and inspected regularly by authorized and trained facility staff. A complete schedule would be established before the start of operations.

The access roads built and used during the construction phase would be maintained throughout commercial operations. Cattle guards installed where access roads cross existing fences would also be inspected and maintained throughout commercial operations. During operations, all project access roads would be evaluated and graded as necessary to facilitate operations and maintenance. In addition to grading, the application of new gravel may be necessary to maintain road surfaces. Water would be used as needed for dust control.

2.1.3 Wind Energy Facility Decommissioning

Decommissioning involves the removal and disposal of infrastructure and facilities associated with a wind energy facility. SVW anticipates that the SVWEF would have a usable lifespan, after which continued operation would not be cost-effective. This is expected to occur after approximately 30 years of operation. Once the usable lifespan of the wind energy facility has been reached, the goal is to return the site to as close to preconstruction conditions as possible. Prior to decommissioning, a detailed plan would be prepared to address specific needs of the project consistent with the BLM policy and would be approved by the BLM. The BMPs and stipulations that have been developed for construction activities would be applied to similar activities completed during decommissioning.

Generally, decommissioning involves disassembling WTGs and associated infrastructure and salvaging any valuable materials such as steel and copper. Unsalvageable materials would be disposed of at an approved landfill location. Following removal of facilities, turbine foundations would be partially removed to below grade, and pads and access roads would be recontoured and reseeded. Ground disturbance and impacts associated with decommissioning would be similar to those associated with construction activities.

2.1.4 Construction, Operation, and Reclamation Design Features

2.1.4.1 FACILITY COMMITMENTS

- Existing roads and utility corridors – The primary north-south road follows an existing dirt road, and the project would tie into the existing 230-kV line.
- Tubular conical steel turbine towers – Tubular towers do not provide locations for raptors to perch, which decreases the risk of collisions with turbine blades.
- Underground collection system – Reduces the visual impact of overhead transmission as well as the potential impact to avian and bat species from collisions.
- Setbacks – Turbines would be set back from public roads at least 1.1× total turbine height and would be set back 1.5× total turbine height from any property lines and ROW boundary.

2.1.4.2 CONSTRUCTION, OPERATION, AND DECOMMISSIONING COMMITMENTS

- Construction vehicle movement within the project boundary would be restricted to pre-designated access, contractor-required access, and public roads.
- A qualified third-party contractor would serve as an Environmental Inspector to ensure compliance with all project authorizations, permits, and approvals.
- In construction areas where ground disturbance is unavoidable, surface restoration would consist of recontouring and reseeding with a BLM-approved seed mix. A full list of BMPs would be included in the project's Construction, Operation, and Maintenance (COM) Plan.
- Geotechnical investigations would be done for each turbine to ensure not to puncture and dewater the aquifer. Specific measures would be developed as needed to address geotechnical issues.
- If the perching groundwater layer, as identified by the on-site geologist or geotechnical engineer or engineer's representative is breached, the hole or breach point would be seal grouted to preserve the subsurface hydrology that feeds the local system.
- For all excavations, the crews would be instructed to minimize the period of time that a trench or hole is open; however, in some cases excavations would be left open overnight or for several days in the case of turbine foundations. For all excavations left overnight, measures would be put in place to prevent injury to wildlife. Those measures include either covering holes or installing temporary visible barriers around trenches/holes. All turbine foundations would also have ramps that would allow animals to climb out.
- The Traffic Management Plan (see Appendix B) would be followed for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan shall incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration. Additionally, SVW would consult with local planning authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day and their size and type.
- A detailed transportation plan/route study would be completed following the transportation planning requirements described in Appendix B.
- The Lighting Plan (see Appendix C) would be followed to ensure that lighting is installed to meet safety and FAA requirements as well as to reduce night sky lighting and wildlife effects.

2.1.4.3 RESOURCE CONSERVATION MEASURES

- Measures from the PEIS would be followed as shown in Table 6.2-1.
- Cultural Resources Monitoring and Discovery Plan (Appendix E) – The plan describes procedures to follow in accordance with state and federal laws, if archaeological materials or human remains are discovered. Adherence to this plan would protect cultural resources that are discovered, assist construction personnel in complying with applicable laws, and expedite the project in the event of discovery.
- Direct avoidance of any eligible cultural resources.
- A worker education awareness program providing instruction on avoiding harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons, would be provided to all construction employees prior to ground breaking activities.
- Avian and Bat Protection Plan (ABPP) (Appendix F) – The plan describes initial mitigation requirements, post-construction monitoring requirements, and an adaptive mitigation strategy.

The plan uses a tiered approach that would result in different levels of mitigation being implemented based on the findings of post-construction monitoring.

- Facilities shall be designed to discourage their use as perching or nesting substrates by birds. For example, power lines and poles shall be configured to minimize raptor electrocutions and discourage raptor and raven nesting and perching. The BLM and the project proponent would consult with NDOW on the final deterrent design.
- Migratory birds – If construction is planned between March 15 and July 30, migratory bird clearance surveys would be conducted no more than one week before construction. Evidence of active nests or nesting would be reported immediately to the BLM to determine appropriate minimization measures (i.e., avoidance buffer would be established until birds have fledged the nest) on a case-by-case basis.
- Nest surveys would be conducted prior to the nesting season (approximately March 15 to July 30) and once each month during the nesting season during the first three years and every fifth year after that. Aerial or ground-based raptor nest surveys would be conducted within the entire project area and a 1-mile buffer for raptors (BLM 2007), except for golden eagles (*Aquila chrysaetos*). Golden eagle search distances would be 10 miles from the project area based on current U.S. Fish and Wildlife Service (USFWS) guidance. The complete 10-mile search area would be limited to once at the beginning of the golden eagle nesting season with monthly follow-up surveys only being completed for identified golden eagle or potential golden eagle nests. Where appropriate, activities would be restricted from May 1 through July 15 within 0.5 mile of any raptor nest site that has been active within the past five years. See Appendix F, Section 4.5 for further details on this measure. If a bird nest is found to be in use, the Technical Advisory Committee (TAC) would recommend necessary action based on the ABPP (see Appendix F).
- All new aboveground poles and transmission lines installed would be constructed to Avian Power Line Interaction Committee (2006) standards to reduce the likelihood of collision and electrocution.
- Where appropriate, permitted activities would be restricted from March 1 through May 15 within 2 miles of an active greater sage-grouse lek.
- As part of SVW’s environmental commitment, the company would donate $500,000 to enhance sagebrush habitat that supports sagebrush-obligate species such as the greater sage-grouse and pygmy rabbit. Funds would be deposited into NDOW’s Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts at the onset of construction activities. Through a Memorandum of Agreement, NDOW and BLM would develop a cooperative conservation agreement plan for utilization purposes, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration. An effort must first be made to apply the funds to sagebrush restoration within Spring Valley and then outside the valley if necessary. Donations into this account are eligible for matching federal funding. All decisions of how to utilize the money would require both NDOW and the BLM approval.
- Where appropriate, permitted construction activities would be restricted from November 1 through March 31 within greater sage-grouse winter range. If activities must occur during that time, a survey would occur prior to work to determine whether greater sage-grouse are present. Pedestrian transect surveys spaced 300 feet apart would be conducted within the proposed areas of disturbance and a 0.25 mile buffer. If individuals are not present, work may commence; if individuals are present, the BLM would determine necessary action such as requiring an on-site biological monitor or restricting work areas until sage-grouse have left the project area.
- A site-specific Stormwater Pollution Prevention Plan (SWPPP) would be prepared following the requirements outlined in the project SWPPP and SPP (see Appendix D).

- A Restoration and Weed Management Plan has been completed for the project (see Appendix A) and would be followed.
- Micrositing of staging and temporary use areas would be completed as practicable to avoid winterfat-dominated sites.
- For soil-disturbing actions that would require reclamation, all available growth medium would be salvaged and stockpiled prior to surface disturbances. Stock piles would be seeded if they are to be left for more than one growing season. All disturbance areas would be recontoured to blend as closely as possible with the natural topography prior to revegetation. SVW would rip all compacted portions of the disturbance to an appropriate depth based on recognizable soil compaction indicators, i.e., platy soil structure. An adequate seed bed would be established to provide good seed to soil contact.
- Any swamp cedar (*Juniperus scopulorum*) that must be removed would be made available for education, scientific, and research purposes as determined by the BLM.
- Measures for reducing the spread and establishment of noxious and invasive weeds have been incorporated into the Restoration and Weed Management Plan (see Appendix A). The plan addresses monitoring, education of personnel on weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching is required. Trucks and construction equipment (including mobile office trailers, etc.) arriving from other locations would have a controlled inspection and a cleaning area would be established to visually inspect equipment arriving at the project area and to remove and contain seeds that may be adhering to tires and other equipment surfaces.
- If pesticides are used on-site, an integrated pest management plan shall be developed to ensure that applications would be conducted within the framework of BLM and U.S. Department of the Interior policies and entail only the use of U.S. Environmental Protection Agency (EPA)-registered pesticides. Pesticide use shall be limited to non-persistent, immobile pesticides and shall only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.
- Weed management in areas of special-status species would carefully consider the impacts of the treatment on the organism. Whenever possible, manual control or spot treatment using herbicides is preferred over less species specific methods. Noxious and invasive weed control would not be conducted within 0.5 mile of nesting and brood rearing areas for special-status species during the nesting and brood rearing season.
- All straw, hay, straw/hay, or other organic products used for reclamation or stabilization activities must be certified that all materials are free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office. Inspections would be conducted by a weed scientist or qualified biologist.
- Where appropriate, vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground-disturbing activities; for emergency fire suppression; or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. Vehicles and equipment would be cleaned with power or high-pressure equipment prior to entering or leaving the work site or project area. Vehicles used for emergency fire suppression would be cleaned as a part of check-in and demobilization procedures. Cleaning efforts would concentrate on tracks, feet, or tires and on the undercarriage. Special emphasis would be applied to axles, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out, and refuse would be disposed of in waste receptacles. Cleaning sites would be recorded using global positioning systems (GPS) units or other mutually acceptable equipment and provided to the Ely District Office Weed Coordinator or designated contact person.

- Prior to the entry of vehicles and equipment to a planned disturbance area, a weed scientist or qualified biologist would identify and flag areas containing weeds. The flagging would alert personnel or participants to avoid areas of concern whenever possible.
- To minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped. Appropriate measures would be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials would be returned to the area from which they were stripped.
- A 3.6-mile-long fence would be constructed outside the northeast corner of the project area to keep cattle in the Bastian Creek Allotment from entering the project area during construction and rehabilitation. The new fence would tie with existing fences associated with management of the grazing allotment. SNWA owns 80 acres with a water source for grazing animals at the northeast corner of the project area. A fence surrounding the SNWA 80-acre parcel would also be constructed with gates allowing access from inside and outside the project area.
- A 5.6-mile-long fence would be constructed on the west side of the project area to connect with existing fences in order to keep cattle in the Majors Allotment from entering the project area during construction and rehabilitation. Cattle guards would be added at the two road crossings along the fence line. The fence specifications would be the same as those for the Bastian Creek fence described above.
- Subject to FAA approval, an intelligent on-demand lighting system would be installed on WTGs.

2.2 Alternate Development Alternative (BLM Preferred Alternative)

The Alternate Development Alternative was developed to address potential conflicts with sensitive biological, cultural, and Native American conflicts. This alternative would also use 75 turbines to provide 149.1 MW of power, but turbine locations have been altered and would occur within a smaller overall project area (7,673 acres). General construction, operation, and maintenance of this alternative would be the same as for the Proposed Action.

2.2.1 Wind Energy Facility Construction

Construction of this alternative would be completed in the same way and follow the same construction schedule as the Proposed Action. The actual long-term ground disturbance of the turbines and plant infrastructure (civil and electrical) would be approximately 1.4% of the total project area.

2.2.1.1 WIND ENERGY FACILITY COMPONENTS

The components for this alternative would be the same as the Proposed Action. The short-term (the period from beginning of construction until reclamation) and long-term disturbance (the duration of the project) areas for this alternative are described in Tables 2.2-1 and 2.2-2. The alternative project area totals approximately 7,673 acres, all of which are on BLM land covered by the requested ROW. The total area estimated for use by the wind energy facility (including both short- and long-term disturbance) is approximately 430.1 acres, or approximately 5.6% of the total ROW.

Table 2.2-1. SVWEF Components: Maximum Short-Term Disturbance Summary Table, Based on Construction of the Alternate Development Alternative

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Short-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	400[1]	N/A	217.5	0.028
Laydown, batching plant, and parking area	820	530	10.0	0.001
Access roads	129,542	40	118.96	0.016
Collection system	138,579	20	63.63	0.008
Fiber-optic line[2]	390	20	0.18	NA
Radar fiber-optic line	500	20	0.23	0.000
Gravel Pits A & B and access[‡]	660	660	10.0	0.001
Footprint overlap[≠]	N/A	N/A	−95.1	−0.012
Total			**325.4**	0.042

[1] This measurement represents the diameter of the disturbance area.

[2] Outside project area but contributes to overall disturbance footprint.

[3] 10.0-acre Gravel Pit B is an off-site existing disturbance and is not included in the overall disturbance acreage.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

Table 2.2-2. SVWEF Components: Maximum Long-Term Disturbance Summary Table, Based on Construction of the Alternate Development Alternative

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Long-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	75[1]	N/A	22.5	0.003
Access roads (add 2 radar access roads – 0.23 acre each)	129,542	28	83.27	0.011
MET tower	50[1]	N/A	0.1	0.000
Spring Valley substation, Osceola substation, and O&M building (includes two microwave towers)	1,080	805	20.0	0.003
Radars	25	35	0.02	0.000
Fence[2]	34,470	12	9.5	NA
Footprint overlap[≠]	N/A	N/A	−30.72	−0.004
Total			**104.67**	0.013

[1] This measurement represents the diameter of the disturbance area.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

[2] Outside project area but contributes to overall disturbance footprint.

2.2.1.2 PRECONSTRUCTION AND CONSTRUCTION ACTIVITIES

An overview of construction activities necessary for the development of a wind energy project is described in BLM's PEIS (BLM 2005). The following preconstruction and construction activities are specifically relevant to the SVWEF Alternate Development Alternative.

2.2.1.2.1 Geotechnical Investigations

Geotechnical investigations are the same as for the Proposed Action.

2.2.1.2.2 Site Preparation

Site preparation is the same as for the Proposed Action.

2.2.1.2.3 Wind Turbine Layout, Installation, and Construction Processes

The same potential turbine types have been identified for the Alternate Development Alternative as the Proposed Action, and the same installation and construction processes would be followed. However, for this alternative the 75 turbines have been sited to avoid major resource issues while still maintaining locations that provide sufficient wind speed and consistency for a viable project. Figure 2.2-1 presents the site layout for the Alternate Development Alternative. Resource avoidance includes:

- At least 0.5 mile from recorded active raptor nests (SWCA Environmental Consultants [SWCA] 2009a);
- At least 0.5 mile from open water sources (SWCA 2009b);
- Outside occupied and high-quality pygmy rabbit habitat (SWCA 2009b);
- At least 2 miles from active sage-grouse leks (SWCA 2009b); and
- Outside Native American sacred areas (SWCA 2009c).

2.2.1.2.4 Wind Turbine Components and Assembly

Wind turbine components and assembly are the same as under the Proposed Action.

2.2.1.2.5 Temporary Construction Workspace, Yards, Materials Storage, and Staging Areas

Temporary construction workspace, yards, materials storage, and staging areas would be the same as under the Proposed Action.

2.2.1.2.6 Access Roads

Access roads would be built to the same widths and road standards as under the Proposed Action. Under the Alternate Development Alternative, a new, long-term, approximately 0.5-mile-long site access road to the first WTG in that WTG array would be constructed approximately 0.3 mile from the existing transmission line access road; a second permanent access road, approximately 0.6 mile long, to the first WTG in that WTG array would be constructed approximately 0.7 mile north of the primary access road. The Alternate Development Alternative would use the existing north-south road to access turbine strings. There would be up to a total of 25.8 miles of new access roads, including the two site access roads, the turbine access roads, and the MERLIN radar unit access roads. Access roads for gravel pits (1.1 miles) would be along existing roads that would be improved, with a maximum expansion to 28 feet wide. Portions of the roads exclusively for gravel pit access would be reclaimed entirely. Remaining sections of road that would be used for other purposes such as administrative access would be restored back to their original condition. There would be up to 83.3 acres of disturbance from new road construction that would not be restored until after decommissioning. The final long-term roads would be compacted and surfaced with gravel aggregate from BLM-permitted sources.

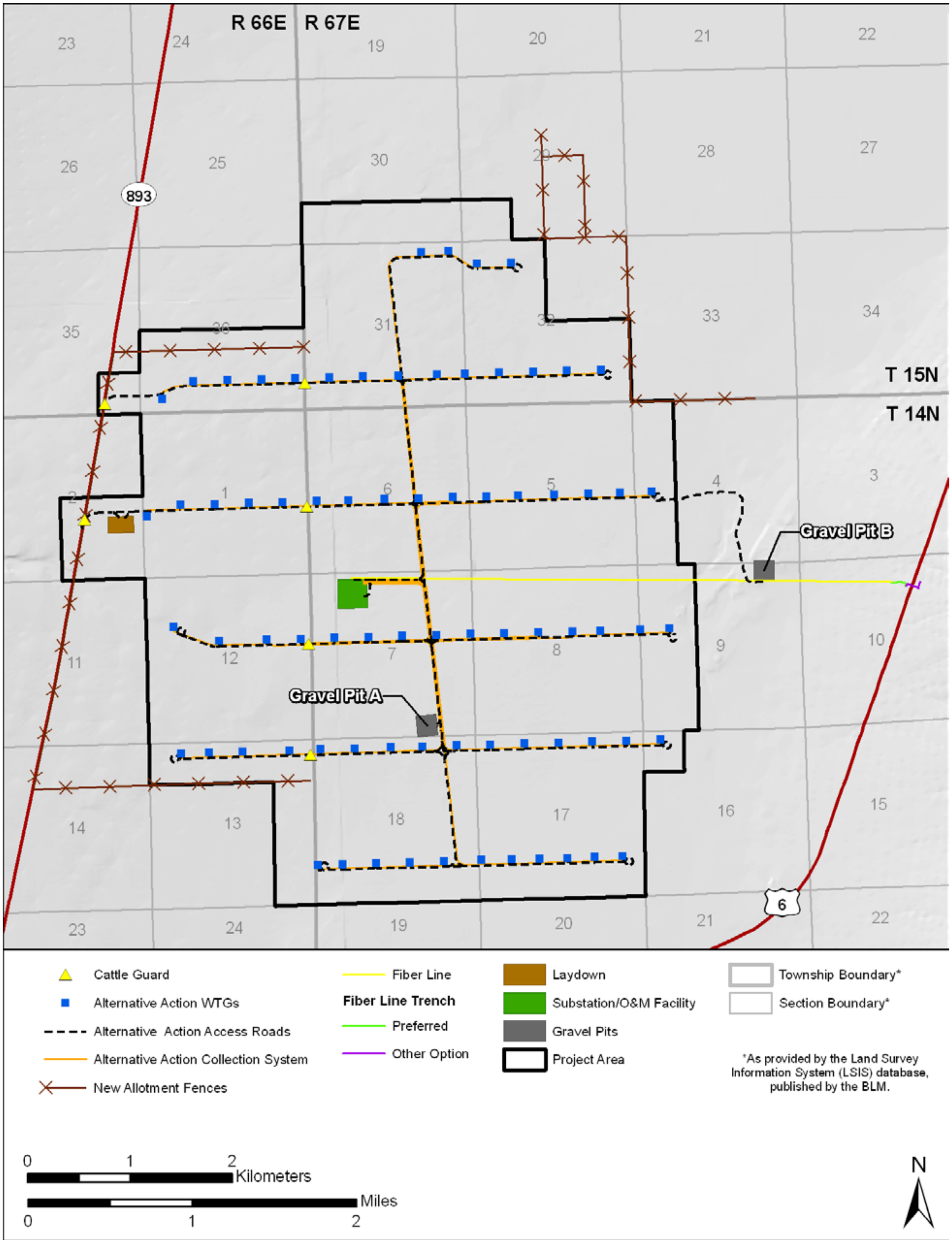

Figure 2.2-1. Alternate Development Alternative site layout.

2.2.1.2.7 Electrical System

The electrical system would include the same components and design as under the Proposed Action, including the Spring Valley substation and Osceola switchyard. However, under the Alternate Development Alternative, approximately 26.2 miles of trenches for collector cables would be required, with a total of 63.6 acres of temporary disturbance.

2.2.1.2.8 Communications System Requirements (Microwave, Fiber Optics, Hard Wire, Wireless)

Communication system requirements, including the microwave tower, would be the same as under the Proposed Action. Under this alternative, approximately 26.3 miles of fiber-optic cables and collector cables would be placed underground in trenches adjacent to access roads. The fiber-optic cable from the Osceola switching station would not change from what is described under the Proposed Action.

Both the MERLIN and VESPER radar systems would be installed and operated as described under the Proposed Action.

2.2.1.2.9 O&M Building

Components and construction of the O&M building would be the same as under the Proposed Action.

2.2.1.2.10 Gravel, Aggregate, and Concrete Needs and Sources

Gravel, aggregate, and concrete needs and sources would be the same as under the Proposed Action.

2.2.1.2.11 Concrete Batch Plant

The concrete batch plant would be the same as under the Proposed Action.

2.2.1.2.12 Water Usage, Amounts, and Source

Water usage, amounts, and source would be the same as under the Proposed Action.

2.2.1.2.13 Construction Workforce Numbers, Needs, and Vehicles

Construction workforce numbers, needs, and vehicles would be the same as under the Proposed Action.

2.2.1.2.14 Construction Materials and Components Transportation

Construction materials and components transportation would be the same as under the Proposed Action.

2.2.1.2.15 Aviation and Project Area Lighting (Wind Turbines)

Aviation and project area lighting would be the same as under the Proposed Action.

2.2.1.2.16 Site Stabilization, Protection, and Reclamation Practices

Site stabilization, protection, and reclamation practices would be the same as under the Proposed Action.

2.2.1.2.17 Waste and Hazardous Materials Management

Waste and hazardous materials management would be the same as under the Proposed Action.

2.2.2 Wind Energy Facility Operation

2.2.2.1 OPERATIONS, WORKFORCE, EQUIPMENT, AND FACILITY MAINTENANCE NEEDS

Operations, workforce, equipment, and facility maintenance needs would be the same as under the Proposed Action.

2.2.2.2 MAINTENANCE ACTIVITIES, INCLUDING ROAD MAINTENANCE

Maintenance activities, including road maintenance, would be the same as under the Proposed Action.

2.2.3 Wind Energy Facility Decommissioning

Decommissioning would be the same as under the Proposed Action.

2.2.4 Design Features Included in the Alternate Development Alternative

All measures identified for the Proposed Action would also be applied to the Alternate Development Alternative.

2.3 No-Action Alternative

Under the No-Action Alternative, SVW's ROW application to develop the SVWEF under the Proposed Action or Alternate Development Alternative would not be approved. The SVWEF would not be developed, and existing land uses within the project area would continue. The No-Action Alternative forms the baseline against which the potential impacts of the Proposed Action and Alternate Development Alternative are compared. Thus, it includes current actions and activities within the SVWEF project area. No additional actions are assumed to occur in the absence of approval of any of the action alternatives.

Selection of the No-Action Alternative would not preclude the approval of other ROWs for energy development or other projects sometime in the future. However, to compare the human and environmental impacts of developing the SVWEF versus not developing it, this EA was prepared under the assumption that other ROWs would not be issued in the project area in the near future if the No-Action Alternative were selected. Reasonably foreseeable future actions are considered in the cumulative impacts section of this EA. Authorization of future projects would require another ROW application and completion of another NEPA process.

DOE's No-Action Alternative would be to not grant a federal loan guarantee. If a DOE loan guarantee were not granted, construction of the project would be contingent upon BLM issuing the necessary ROW grants and the ability of SVW to obtain commercial financing without a federal guarantee. If SVW were able to obtain the ROW grants and financing, the environmental impacts described for the action alternatives would still occur, otherwise the project would not go forward and the impacts would not occur.

2.4 Comparison of Alternatives

Resource	Proposed Action	Alternate Development Alternative	No-Action Alternative
Reptiles and Amphibians	Habitat loss, injury, and mortality would occur during construction. Increased run-off, dust, and erosion would result in decreased surface water quality. Wetland areas in the project area would be avoided, reducing the risk of changes in water quality and habitat for amphibians.	Impacts would be similar to those described under the Proposed Action. Impacts to surface water quality from run-off, and erosion would be reduced by excluding WTG sites within 0.5 mile of open water sources.	No change from current conditions.
Small Mammals	Disturbance from construction and operation of the SVWEF would result in habitat loss, increased invasive vegetation, mortality, decreased water quality, and increased predation.	Impacts would be similar to those described under the Proposed Action. Impacts to water quality and drinking water availability from run-off and erosion would be reduced by WTG sites being placed outside high-quality and occupied pygmy rabbit habitat.	No change from current conditions.
Big-game Species	There would be no loss of crucial winter habitat for pronghorn. Displacement of elk, mule deer, and pronghorn from the entire project area would occur during construction as a result of increased human presence and noise levels.	The effects would be similar to those described under the Proposed Action.	No change from current conditions.
Waterfowl and Shorebirds	An increased risk of injury and mortality would occur from construction activities, collisions, and the risk of electrocution. Noise levels during construction and permanent disruption of vegetation would deter some species from using the project area.	Impacts would be similar to those described under the Proposed Action, but the intensity would be reduced. Collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources.	No change from current conditions.
Songbirds	Loss of habitat, injury, and increased risk of mortality would occur during construction. Mortality from electrocution, and collisions with WTGs and other vertical structures would occur during operations.	Impacts would be similar to the Proposed Action, but the intensity would be reduced. Collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources.	No change from current conditions.
Birds of Prey and Vultures	As a result of construction and operational activities, loss of habitat, increased mortality and injury, and interference with behavioral activity (nesting) would occur.	Impacts to these species would be similar to those described under the Proposed Action. Fatalities from collisions and nest abandonment would be reduced because construction activities would not occur within 0.5 mile of known raptor nests.	No change from current conditions.
Bats	Loss of habitat, injury, and mortality would occur during construction. Mortality from electrocution, barotraumas, and collisions with WTGs and other vertical structures would occur during operations.	Impacts to these species would be similar to those described under the Proposed Action. Barotraumas and collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources.	No change from current conditions.
Special-status Small Mammals	Disturbance from construction and operation of the SVWEF would result in habitat loss, increased invasive vegetation, mortality, decreased water quality, and increased predation on pygmy rabbits. Habitat enhancement for sagebrush restoration as part of the Proposed Action would provide new and/or improved sagebrush habitat for the species over the long-term.	Impacts would be similar to those described under the Proposed Action. Impacts to water quality and drinking water availability from run-off, and erosion would be reduced by WTG sites being placed outside high-quality and occupied pygmy rabbit habitat. Habitat enhancement for sagebrush restoration as part of the Alternate Development Alternative action would provide new and/or improved sagebrush habitat for the species over the long-term.	No change from current conditions.

Resource	Proposed Action	Alternate Development Alternative	No-Action Alternative
Special-status Waterfowl and Shorebirds	Infrequent collisions with turbines may occur. Impacts would be similar to the effects on waterfowl and shorebirds section.	Impacts would be similar to the Proposed Action, but the intensity would be reduced. Collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources where waterfowl and shorebirds occur more frequently.	No change from current conditions.
Special-status Songbirds	Loss of habitat, injury, and mortality would occur during construction. Mortality from electrocution and collisions with WTGs and other vertical structures would occur during operations. Because of their frequent representation during surveys and observation in the rotor-swept area, injury or mortality to loggerhead shrikes is expected to be more frequent than for other species.	Impacts would be similar to the Proposed Action, but the intensity would be reduced. Collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources where songbirds occur more frequently.	No change from current conditions.
Special-status Gallinaceous Birds	The presence of WTGs and associated facilities would result in greater sage-grouse avoidance of the project area and up to 2 miles surrounding new vertical structures. Potential abandonment of nesting areas and the Bastian Creek lek may occur. Habitat enhancement for sagebrush restoration as part of the Proposed Action would provide new and/or improved sagebrush habitat for the species over the long-term.	Impacts are expected to be similar to those under the Proposed Action. Active leks would be avoided by at least 2 miles, reducing the risk of lek abandonment. Habitat enhancement for sagebrush restoration as part of the Alternate Development Alternative action would provide new and/or improved sagebrush habitat for the species over the long-term.	No change from current conditions.
Special-status Birds of Prey	As a result of construction and operational activities, loss of habitat, increased mortality and injury, and interference with behavioral activity (nesting) would occur.	Impacts to these species would be similar to those described under the Proposed Action. Fatalities from collisions and nest abandonment would be reduced because construction activities would not occur within 0.5 mile of known raptor nests.	No change from current conditions.
Special-status Bats	Loss of habitat, injury, and mortality would occur during construction. Mortality from electrocution, barotraumas, and collisions with WTGs and other vertical structures would occur during operations. Brazilian free-tailed bats are the most common migratory special-status bat species in the area and are most susceptible to mortality from collisions and barotraumas.	Impacts to these species would be similar to those described under the Proposed Action. Barotraumas and collisions with WTGs are expected to be lower as a result of excluding WTG sites within 0.5 mile of open water sources.	No change from current conditions.
Special-status Vegetation	Direct mortality and decreased plant productivity may result from construction and operational activities. Parish phacelia is the only species identified with the potential to occur in the project area. Based on observations, limited suitable habitat occurs in the project area.	Impacts to Parish phacelia would be similar to those described under the Proposed Action.	No change from current conditions.
Grazing	There would be both a short-term and long-term loss of forage available to livestock grazing from the construction and operation and the SVWEF. Fencing to prevent livestock from impacting restoration success would exclude livestock from portions of both the Bastian Creek and Majors allotments. There would be no loss of animal unit months in either allotment.	Impacts to grazing would be similar to those described under the Proposed Action.	No change from current conditions.

Resource	Proposed Action	Alternate Development Alternative	No-Action Alternative
Surface Water	Surface water quality would be affected by an increase in impermeable surfaces and runoff.	Impacts to surface water flows would occur but would be less than for the Proposed Action. Roads would be placed farther, over 0.5 mile, from open water sources, and there would be a reduced area of new impermeable surfaces.	No change from current conditions.
Groundwater	Groundwater would be used mostly during construction for dust control and during operation for potable uses and maintenance.	Impacts would be the same as those described under the Proposed Action.	No change from current conditions.
Cultural Resources	The Proposed Action has been designed to avoid all identified cultural resources within the project area. There would be an increased risk of damage and loss to cultural resources not identified during the Class III surveys. Additionally, operation of the facility would result in increased public visitation to the area and increased risk of vandalism and destruction.	Impacts to cultural resources would be similar to those described under the Proposed Action. Risk of encountering sites not identified would be reduced as a result of the reduced project area size.	No change from current conditions.
Native American Concerns	Impacts to interests of Native Americans would occur from the increased risk of damage to cultural resources, loss of traditional plant-collecting areas, and visual and aural contrasts to the historic setting of the Swamp Cedar ACEC.	Through tribal consultation, WTG locations under the Alternate Development Alternative have been located to reduce impacts to Native American concerns.	No change from current conditions.
Visual Resources	Temporary disturbances during construction to vegetation and landscape would be visible for years after completion. WTGs would be visible for the life of the project. The WTGs and facilities would result in contrasts with the line, form, and color of the current landscape.	The contrasts to the existing landscape would be the same as those described under the Proposed Action.	The landscape would continue to be influenced by the current disturbances.
Night Sky Conditions	Lighting on the turbines and facilities would be necessary for safety, with minimal impact to the nighttime skyglow. There would be no change to the area's Bortle Dark Sky rating.	The lighting and nighttime effects would be the same as those under the Proposed Action.	No change from current conditions.
Noise	Effects from construction traffic and employee vehicle traffic would result in a short-term increase in ambient noise levels. Long-term noise would result from daily facility activities.	Construction activities would occur further from the Bastian Creek Ranch. The same increases in noise levels would occur as under the Proposed Action but would be farther from the sensitive noise receptor at the ranch.	Current ambient noise levels would remain.
Transportation	An increase in traffic on local highways and routes would occur during construction from construction personnel, component deliveries, and construction equipment. Traffic increases would only occur during the construction phase.	Impacts to transportation would be the same as those described under the Proposed Action.	No change from current conditions.
Land Uses	Temporary, intermittent delays to access nearby ROWs during construction would occur. Operation and maintenance would result in long-term change to the undeveloped character of the land.	Impacts would be similar to those described under the Proposed Action. There would be fewer access roads, avoidance areas, and effects from construction activities under the Alternate Development Alternative.	Land uses would be managed under their current conditions by the BLM.
Special Designations	Construction activities would result in indirect disturbances to ACECs from increased fugitive dust and noise. Installation of bat monitoring equipment would result in long-term disturbance at Rose Guano Cave ACEC.	Similar impacts would result to ACECs as described under the Proposed Action.	No change from current conditions.

Resource	Proposed Action	Alternate Development Alternative	No-Action Alternative
Recreation	Public access would be restricted temporarily, and traffic delays would occur intermittently during construction. A decrease in scenic quality would occur to surrounding recreational areas. There would be a negligible loss in hunting opportunities in Spring Valley.	Similar impacts would be seen to recreational sites and activities as described under the Proposed Action.	No change from current conditions.
Socioeconomics	Short-term beneficial impacts include the creation of jobs during construction. The operations and maintenance would bring increased tax revenue and long-term jobs to White Pine County.	Similar impacts would be seen for construction and operation as those described under the Proposed Action.	No change from current conditions.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

NEPA mandates that reasonable alternatives to the Proposed Action be considered. Reasonable alternatives cannot be "straw men alternatives" or be functionally equivalent to the "no-action" alternative. An example of such an alternative would be to propose a coal-fired power plant when a proponent that builds wind energy facilities has proposed a wind energy facility. If analyzed, the coal-fired plant alternative would either be a "straw man" to satisfy a perceived need for an alternative with no intention of selecting it in the final decision, or, if actually selected, would ultimately have the same impacts as the No-Action Alternative since it could not be reasonably expected to be implemented by the proponent (unless another company came forth and built a coal-fired power plant as analyzed—an extremely unlikely scenario).

2.5.1 Alternate Northern Project Area

An alternate location directly north of and adjacent to the Proposed Action area that included some proposed development on private lands was considered. SVW installed and maintained three MET towers monitoring the wind resource throughout the area for two to three years. Wind data collected by SVW over that time show that the northern project area does not have an economically viable wind resource that would meet the need of the PPA for the proposed project. In addition, BLM resource specialists indicated that there was a greater potential to affect sensitive cultural resources, and the WTGs associated with this area would have been clearly visible from private residences on Sacramento Pass and campsites in the Cleve Creek Recreation Area.

2.5.2 Alternate Northeastern Project Area

A location northeast of the Proposed Action area, including lands within and directly adjacent to the Swamp Cedar ACEC, was considered. Following completion of wildlife surveys and cultural resource intensive inventory of the area, the BLM determined that there was a greater potential to affect sensitive cultural resources and wildlife use associated with the ACEC, and this project area was eliminated from further detailed analysis.

2.6 Conformance with BLM Land Use Plan

The Proposed Action is in conformance with Management Action RE-1 identified in the Ely RMP/FEIS, which directs the BLM to "review proposed renewable energy developments on a project-specific basis, considering potential resource conflicts and mitigation measures. Areas of high potential for wind and solar energy development are identified but no specific areas are designated for such development" (BLM 2008a). Additionally, the Proposed Action is in conformance with the following BLM goals and objectives for renewable energy:

- "provide opportunities for development of renewable energy sources such as wind, solar, biomass, and other alternative energy sources while minimizing adverse impacts to other resources" (BLM 2008a); and
- "be responsive to applications for renewable energy sites and associated rights of way, as encouraged by current BLM policy" (BLM 2008a).

In addition, review of management decisions for other resources and concerns such as Special-status Species, Cultural Resources, and VRM that would possibly be impacted by the project was conducted, and it was determined that approval of the Proposed Action is in conformance with the Ely RMP.

2.7 Relationship to Statutes, Regulations, or Other Plans

The issuance of a ROW for the Proposed Action is consistent with the terms, conditions, and decisions of the White Pine County Public Lands Policy Plan as adopted by the White Pine County Board of County Commissioners (White Pine County Public Land Users Advisory Committee 2007). Although the plan does not include specific policies related to renewable energy development, the Proposed Action is consistent with Policy 11-2: "All energy proposals should attain the lowest feasible emissions, the highest feasible efficiencies and the highest possible standards using Best Available Control Technology."

This EA also complies with the *BLM Final Wind Energy Development Policy* (IM No. 2009-043).

The issuance of a ROW for the Proposed Action is also consistent with all relevant federal, state, and local statutes, regulations, and plans. The known federal, state, and local agencies' approvals, reviews, and permitting requirements that are anticipated to be needed for these new electrical facilities are in Table 2.7-1.

Bald and/or golden eagles may now or hereafter be found to utilize the project area. In conformance with the Bald and Golden Eagle Protection Act (BGEA) and BLM IM 2010-156, the BLM will not issue a notice to proceed for any project that is likely to result in take of bald eagles and/or golden eagles until the applicant completes its obligation under applicable requirements of the BGEA, including completion of any required procedure for coordination with the USFWS or any required permit. The BGEA is a dynamic and adaptable process which may require the applicant to conduct further analysis and mitigation following assessment of operational impacts. Any additional analysis or mitigation required to comply with the BGEA would be developed with the USFWS and coordinated with the BLM.

Table 2.7-1. Authorizations Table

Authorization	Agency Authority	Statutory Reference
Federal		
ROW for Land under Federal Management	BLM	FLPMA of 1976 (PL 94-579); 43 USC 1761–1771; 43 CFR 2800
NEPA Compliance to grant ROW (tiered to Wind Energy PEIS)	BLM	NEPA (PL 91-190, 42 USC 4321−4347, January 1, 1970, as amended by PL 94-52, July 3, 1975, PL 94-83, August 9, 1975, and PL 97-258, §4(b), Sept. 13, 1982)
Endangered Species Act Compliance	USFWS	Endangered Species Act (PL 93-205, as amended by PL 100-478 [16 USC 1531 *et seq*.]); 50 CFR 402
Migratory Bird Treaty Act	USFWS	16 USC 703–711; 50 CFR Subchapter B
Bald and Golden Eagle Protection Act	USFWS	16 USC 668−668(d)
National Historic Preservation Act (NHPA) Compliance	Nevada State Historic Preservation Office (SHPO)	NHPA 106 (PL 89-665; 16 USC 470 *et seq*.)
Notice of Proposed Construction or Alteration (Form 7460.1)	FAA	49 USC, 44718 and, if applicable, 14 CFR 77 (2005), to determine whether the structure exceeds obstruction standards or is a hazard to air navigation
Notice of Actual Construction (Form 7460-2)	FAA	14 CFR 77 (2005)
Consultation Regarding Military Radar	Department of Homeland Security	N/A
Clean Water Act Section 404 Dredge and Fill Permit	U.S. Army Corps of Engineers	33 USC 1344
State		
Clean Water Act Section 401	Nevada Division of Environmental Protection (NDEP)	33 USC 1251 *et seq*.
NHPA 106 Determination of Effect Concurrence	Nevada SHPO	16 USC 470 *et seq*., NRS 383
Utility Environmental Protection Act – Permit to Construct	Nevada Public Utility Commission	NRS 704.820-704.900, Nevada Administrative Code (NAC) 704.9063, NAC 704.9359–704.9361
Rare and Endangered Plant Permit	Nevada Division of Forestry	NRS 527.260–527.300
Native Cacti and Yucca Commercial Salvaging and Transportation Permit	Nevada Division of Forestry	NRS 527.050–527.110
Incidental Take Permit	Nevada Department of Wildlife	NRS 503.584–503.589; NAC 503.093
Operating Permit (Clean Air Act, Title V)	NDEP, Bureau of Air Pollution Control	NAC 445B, 42 USC 7401
Groundwater Discharge Permit	NDEP, Bureau of Water Pollution	NRS 445A.300−730, NAC 445A.070−348, NAC 445A.810−925
Clean Water Act, Section 402 National Pollutant Discharge Elimination System Notification for Stormwater Management during Construction	NDEP	33 USC 1251 *et seq*.
Surface Area Disturbance Permit/Dust Control Plan	NDEP	NRS 519A.180 (for small sites), NAC 445B

Table 2.7-1. Authorizations Table (Continued)

Authorization	Agency Authority	Statutory Reference
State, continued		
ROW Occupancy Permit	NDOT	NRS 408.423, 408.210, NAC 408
Over Legal Size/Load Permit	NDOT	NRS 484.437−775, NAC 484.300−580
Uniform Permit (for Transportation of Hazardous Materials)	Nevada Department of Public Safety	NAC 459.979
Assignment of Water Rights	Nevada Division of Water Resources (State Engineer)	NRS 533−534
Industrial Artificial Pond Permit	Nevada Department of Wildlife	NRS 502.390
Well Permit	Nevada Division of Water Resources	N/A
Phase I Environmental Site Assessment	NDEP	Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 USC 9601 *et seq.*
White Pine County		
Special Use Permit or Zoning Change	White Pine County Board of Commissioners City of Ely	White Pine County Zoning Ordinance
Septic System Permit	White Pine County	White Pine County Permit
Utility Permit/Easement	Utility owner (Mount Wheeler Power)	White Pine County Permit
Building Permit	White Pine County	White Pine County Permit
Variance	White Pine County Board Of Commissioners City of Ely	White Pine County Permit

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area. While many issues may arise during scoping, not all of the issues raised warrant detailed analysis. Issues raised through scoping are analyzed if:

- Analysis of the issue is necessary in order to make a reasoned choice between alternatives;
- The issue is significant (an issue associated with a significant direct, indirect, or cumulative impact, or where necessary to determine the significance of impacts); or
- There is a disagreement about the best way to use a resource or resolve an unwanted resource condition or potentially significant effects of a Proposed Action or alternative.

Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed above to determine whether detailed analysis was required in the EA. Consideration of some of these items occurs in order to ensure compliance with laws, statutes, or EOs that impose certain requirements on all federal actions. Other items are relevant to the management of public lands in general or to the Ely District BLM in particular.

Many times, a project would have no impact on a resource of concern or the effect would not exceed what is described in the PEIS. Impacts to resources that are beyond those described in the PEIS would require detailed analysis in this EA. Table 3.1-1 documents the evaluation of each resource/concern and rationale for inclusion or dismissal from detailed analysis in the EA.

Table 3.1-1. Resource/Concern Evaluation

Resource	Detailed Analysis Required in EA		Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
	Yes	No	
Air Resources			
Air Quality*	√		Impacts to air quality from a typical wind energy facility are discussed in Section 5.4 of the PEIS. Site-specific evaluation did not indicate any additional impacts than those already disclosed. Those include temporary increased particulate matter (dust) and heavy machinery emissions resulting from construction activities. The affected area is not within an area of non-attainment or areas where total suspended particulates or other criteria pollutants exceed Nevada air quality standards. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference and are adequate for controlling particulates and criteria pollutants.
Water Resources			
Water Quality Drinking/Ground*	√		Impacts to water quality from a typical wind energy facility are discussed in Section 5.3 of the PEIS. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference. Site-specific evaluation did not indicate that any additional impacts to groundwater quality other than those already disclosed would occur as a result of the Proposed Action. Detailed analysis is needed in the EA for surface water quality to disclose project-specific impacts.
Water Resources (Water Rights)	√		Impacts to water resources from a typical wind energy facility are discussed in Section 5.3 of the PEIS and BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference. Site-specific evaluation of water rights requires detailed analysis in the EA.
Wetlands/Riparian Zones *	√		Wetlands/riparian zones could have indirect impacts and are discussed in Section 4.5.2.1.

Table 3.1-1. Resource/Concern Evaluation (Continued)

Resource	Detailed Analysis Required in EA		Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
	Yes	No	
Soil Resources			
Soils		√	A total of 111 acres (0.02% of the Spring Valley Watershed) would be removed from production in the long term. Detailed analysis is not required in the EA.
Farmlands, Prime and Unique*		√	Potential impacts to geological resources from a typical wind farm are discussed in Section 5.10.1 of the PEIS and are consistent with impacts to prime and unique farmlands anticipated for this project. Within the project area, two soil associations exist that qualify portions of the project area for prime farmland status as well as for desert land entry. No unique farmland or land of state or nationwide importance occurs within the project area. The E ½ of Section 12 has been classified for Desert Land Entry. Because prime farmlands within the project area are not currently being used and require the removal of excess salts and irrigation in order to be used, detailed analysis is not required in the EA.
Vegetation Resources			
Forest Health*		√	Forest resources occur at negligible levels within the project area and would not be affected by the Proposed Action.
Rangeland Standards and Guidelines*		√	This is not a grazing or restoration action.
Vegetation		√	Impacts to vegetation are discussed in Sections 5.9.2.1, 5.9.3.1, and 5.9.3.1.3 of the PEIS. Site-specific evaluation did not indicate any additional impacts that would occur as a result of the Proposed Action. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference and are adequate. Impacts to vegetation communities present in the project area are described in Section 4.2.2 Wildlife as impacts to habitat types. Impacts to vegetation are further described in Section 4.4.2 Grazing, as loss of vegetation available for grazing. Further detailed analysis is not required in the EA.
Sensitive Plant Species	√		Although no individuals were identified and limited potential habitat for Parish phacelia was identified in the project area, detailed analysis in the EA is required to disclose the potential impacts of the Proposed Action.
Wildlife			
General Wildlife Species (including reptiles and amphibians, small mammals, big game, waterfowl and shorebirds, songbirds, birds of prey and vultures, and bats)	√		Impacts to wildlife from a typical wind farm operation are discussed in Section 5.9 of the PEIS. BMPs for the protection of wildlife species are listed in Section 2.2.3.2 of the PEIS and Section 3 of the Ely RMP/FEIS. Detailed analysis is needed in the EA to define project specific impacts.
Migratory Birds	√		Migratory bird regulatory framework is discussed in Section 3.2.7. Impacts to migratory birds would be the same as those described in Sections 4.2.3.3, 4.2.3.4, and 4.2.3.5.
Special-status Species* (federally and state listed)	√		No Endangered Species Act listed, threatened, or endangered species or critical habitat occurs in the project area. Detailed analysis is not needed for federally listed species in the EA. BLM- and state-listed species occur or have the potential to occur in the project area. Section 5.9 in the PEIS discusses impacts to wildlife, which applies to BLM and state special-status species. A detailed analysis is required in the EA to address impacts to special-status species specifically occurring in this project area.
Wild Horses			
Wild Horses		√	Not present. There are no herd management areas within the area of analysis.

Table 3.1-1. Resource/Concern Evaluation (Continued)

Resource	Detailed Analysis Required in EA		Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
	Yes	No	
Cultural Resources			
Cultural Resources*	√		Impacts to cultural resources from a typical wind energy facility are discussed in Section 5.12 of the PEIS. A Class III intensive cultural resource inventory was conducted on all portions of the project area that might be subject to ground-disturbing actions. All known cultural resource sites eligible for the National Register of Historic Places would be avoided. If any cultural resource sites were discovered during implementation of this project, all work would cease within the vicinity of the site and the BLM Archaeologist would be contacted immediately. Detailed analysis is needed in the EA to define project-specific impacts.
Heritage Special Designations		√	The Proposed Action is located 50 miles south of the Pony Express Trail and is not in the viewshed. Detailed analysis in the EA is not required.
Paleontological Resources			
Paleontological Resources		√	Impacts to paleontological resources from a typical wind energy facility are discussed in Section 5.2 of the PEIS. After evaluation of the geological and sedimentary context of the project area, it has been determined unlikely that paleontological resources exist, and no surveys or additional research is necessary. If any resources were discovered during implementation of this project, all work in the vicinity would cease and the BLM Archaeologist/Paleontologist would be contacted immediately. Detailed analysis in the EA is not required.
Visual Resources			
Visual Resources	√		Although the Visual Resource Assessment determined that the project meets the Class III VRM criteria established in the Ely RMP/FEIS, impacts to visual resources and Night Skies in Spring Valley and GBNP would occur from the introduction of large WTGs and associated facilities to a predominantly undeveloped landscape. Detailed analysis is needed in the EA to define project-specific impacts.
Land and Realty/Renewable Energy			
Land Uses	√		A Case Recordation Geo report with customer search was conducted on November 4, 2009, using BLM's GeoCommunicator (BLM 2009) and LR 2000 database. Six authorized ROW grants are located within the project area. Detailed analysis is needed in the EA to define project-specific impacts. The SWIP corridor does not overlap the Proposed Action or Alternative project areas.
Travel Management			
Transportation/Access	√		The Proposed Action calls for new roads to be constructed through the project area. Detailed analysis is needed in the EA to define project-specific impacts.
Recreation			
Recreation Uses, including Backcountry Byways, Caves, and Rockhounding Areas	√		The project area is within the Loneliest Highway SRMA. There is a potential for impacts to hunting, as well as a change in the physical and social setting of the project area. Detailed analysis is needed in the EA to define project-specific impacts.
Grazing			
Grazing Uses/Forage (Bastian Creek Allotment and Majors Allotment)	√		At least four towers with associated roads and underground transmission lines would be constructed within a cost-share range restoration project that was performed in fall 2007. In addition, livestock would be excluded from the project area until short-term disturbance areas have re-established vegetation. Detailed analysis is needed in the EA to define project-specific impacts.

Table 3.1-1. Resource/Concern Evaluation (Continued)

Resource	Detailed Analysis Required in EA		Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
	Yes	No	
Forest and Woodland Products			
Forest/Woodland and Other Vegetative Products (native seeds, yucca and cactus plants)		√	No forest/woodland products of concern are present in the project area.
Geology and Mineral Extraction			
Mineral Resources		√	Impacts to mineral resources from a typical wind energy facility are discussed in Section 5.1 of the PEIS. Site-specific evaluation did not indicate any additional impacts that would occur as a result of the Proposed Action. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference and are adequate. Detailed analysis is not required in the EA.
Watershed			
Watershed		√	Impacts to soil resources from a typical wind energy facility are discussed in Section 5.1 of the PEIS. Impacts to vegetation are discussed in Sections 5.9.2.1, 5.9.3.1, and 5.9.3.1.3 of the PEIS. Site-specific evaluation did not indicate any additional impacts that would occur as a result of the Proposed Action. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference and are adequate. Detailed analysis is not required in the EA.
Floodplains*		√	Although there are low-lying areas where water can pool, there are no floodplains in the project area.
Fire			
Fuels		√	No fuels projects are planned for the project area.
Emergency Stabilization and Rehabilitation		√	No emergency stabilization and rehabilitation projects are under way within the project area.
Noxious and Invasive Weeds			
Non-native Invasive and Noxious Species*		√	A Weed Risk Assessment was completed by the BLM for the Proposed Action in March 2009 (Appendix G). The risk rating for this project was determined to be high, and preventive measures for noxious and invasive weeds are necessary. The project could potentially increase and introduce non-native invasive and noxious species to the area. With the implementation of preventive measures identified in the Weed Risk Assessment (see Appendix G), Restoration and Weed Management Plan (see Appendix A), and BMPs referenced in the Proposed Action (Section 2.1.4 above), all impacts would be negligible. Detailed analysis is not required in the EA.
Special Designations			
ACECs*	√		Concerns were raised over the proximity to Rose Guano Cave ACEC and about the potential for construction activities to excavate or drill to levels that may puncture the perched water table, which supports the rare vegetation found in the Swamp Cedar ACEC. Detailed analysis is needed in the EA to define project-specific impacts.
Wilderness/WSA*		√	An evaluation of wilderness characteristics was done using forms provided in BLM Handbook H-6300-1 and it was determined that no wilderness characteristics are present.
Wild and Scenic Rivers*		√	Not present.

Table 3.1-1. Resource/Concern Evaluation (Continued)

Resource	Detailed Analysis Required in EA		Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
	Yes	No	
Other Concerns			
Human Health and Safety*		√	Herbicides may be used for noxious weed control. With proper use of herbicides and implementation of safety measures and BMPs referenced in the Proposed Action (Section 2.1.4 above), there would be no negative effect on human health, and detailed analysis is not required in the EA.
Noise	√		Noise impacts from a typical wind energy facility are discussed in Section 5.5 of the PEIS. During operations, sources of noise would consist of mechanical and aerodynamic noise of WTGs; transformer and switchgear noise from the substation and switching yard; corona noise from transmission lines; vehicular traffic noise, and noise from the O&M building. These sources would result in an increase in the ambient noise level in and around the project area. Detailed analysis is needed in the EA to define project-specific impacts.
Native American Religious Concerns*	√		In early scoping and through BLM tribal consultation, concerns were raised about Native American burials in or near the Swamp Cedar ACEC and in the vicinity of the affected area. An ethnographic report was prepared, and an avoidance area was delineated that included the ACEC and other areas understood to be sacred through the ethnographic report and tribal consultation. Detailed analysis is needed in the EA to define project-specific impacts.
Wastes, Hazardous or Solid*		√	Impacts from hazardous wastes associated with a typical wind energy facility are discussed in Sections 5.6, 5.9.2.1.3, 5.9.2.2.7, 5.9.2.3.4, 5.9.3.1, and 5.9.3.2.5 of the PEIS. No hazardous or solid wastes have been observed or are known to occur in the project area. BMPs from Section 2.2.3.2 of the PEIS are incorporated by reference and are adequate. Detailed analysis is not required in the EA.
Public Safety		√	The project could potentially result in increased public safety issues during the construction phase. With the implementation of safety measures and BMPs referenced in the Proposed Action (Section 2.1.4 above), the effect on public safety would be negligible, and detailed analysis is not required in the EA. The SVWEF comprises mechanical and electrical equipment now in common use strung together to produce electrical power. The facility is proposed for an area far removed from the general population. Few people would come close to the generating or transmitting equipment. The proposed SVWEF presents an unlikely target for an intentionally destructive act and has an extremely low probability of attack. Security fencing and lighting would surround the substation and operations and maintenance building. The limited access in addition to the remoteness of the project site would deter intruders. Theft or opportunistic vandalism would be more likely than sabotage or terrorist acts. The results of any such acts could be expensive to repair, but no substantial impacts to continued electrical service would be anticipated. No substantial environmental impacts would be expected from physical damage to the proposed project or from loss of power delivery; therefore, detailed analysis is not required in the EA.
Environmental Justice*		√	No minority or low-income groups would be disproportionately affected by health or environmental effects.
Socioeconomics	√		Impacts from a long-term increase in employment opportunities, as well as long-term beneficial impacts from an increase in property tax and indirect long-term beneficial impacts from an increase in sales and income tax from operation of a typical wind energy facility, are discussed in Section 5.13.1 of the PEIS. Detailed analysis is needed in the EA to define project-specific impacts.

* Nevada Supplemental Authority.

3.2 Wildlife

Wildlife found in the project area are those species typically associated with Inter-Mountain Basins Mixed Salt Desert Scrub (mixed salt desert scrub), Inter-Mountain Basins Big Sagebrush Shrubland (big sagebrush shrubland), and Great Basin Xeric Mixed Sagebrush Shrubland (mixed sagebrush shrubland), which account for 99% of the project area (U.S. Geological Survey [USGS] 2004). These communities are present throughout the Spring Valley Watershed, which provides a total of 581,213 acres of habitat. These plant communities provide habitat for a variety of wildlife species ranging from common reptiles, birds, and mammals to species of management concern, such as migratory birds or special-status species. This section discusses general wildlife species that have the potential to occur within Spring Valley and are representative of the wildlife occurring in the project area. General wildlife observations were made by SWCA biologists throughout the course of approximately two years of bird and bat surveys conducted at the project area. Throughout surveys, biologists noted all general wildlife species that were observed. In addition to those species observed, most species typical of the region as described in the Ely RMP/FEIS (BLM 2008a) occur or have potential to occur in the project area.

3.2.1 Reptiles and Amphibians

Reptile species occur throughout the project area and are representative of typical Great Basin wildlife. Most reptiles are widespread in the project area, while amphibians are habitat specialists requiring water for at least part of their life cycle. Widespread lizards are represented by species such as western fence lizard (*Sceloporus occidentalis*) and northern side-blotched lizard (*Uta stansburiana*), which were observed on-site during surveys. Snake species are somewhat less widespread; Great Basin rattlesnake (*Crotalus lutosus*), striped whipsnake (*Masticophis taeniatus*), and gophersnake (*Pituophis catenifer*) are representative snakes observed in the project area. The only amphibian observed during surveys was the Great Basin spadefoot toad (*Spea intermontana*), which uses dry areas with loose soil for burrowing and spring areas during breeding.

None of these general reptile and amphibian species are afforded any state or federal protection; therefore, there was no attempt to quantify the size of these species' populations or species' specific use within the project area.

3.2.2 Small Mammals

Most mammals occurring in Spring Valley and the project area are nocturnal, but they may occasionally be seen during the day. Habitat for small mammals is widespread in Spring Valley, with most of the 581,213 acres providing habitat for at least some small-mammal species. Small-mammal species that were observed during surveys and are representative of the small mammals occurring on-site include the black-tailed jackrabbit (*Lepus californicus*), cottontail (*Sylvilagus audubonii*), white-tailed antelope ground squirrel (*Ammospermophilus lecurus*), and desert woodrat (*Neotoma lepida*).

With the exception of pygmy rabbit which is described in Section 3.3.1, small mammals in the area are not federally or state-listed sensitive species. Some small mammals such as cottontail are protected in Nevada as game species. There are no specific protocols or requirements in place for development projects to analyze presence/absence or population density of non-sensitive or game species. Therefore, specific studies to quantity population sizes within the project area were not completed. Based on habitat within the project area, it is assumed that small-mammal populations are similar to other parts of the Spring Valley watershed.

3.2.3 Big-Game Species

Big-game species that occur or have the potential to occur in the project area include pronghorn antelope, mule deer (*Odocoileus hemionus*), and elk (*Cervus canadensis*) (Figure 3.2-1). Pronghorn antelope use most of the Spring Valley watershed (581,213 acres) and were observed by SWCA throughout the project area during every season. Mule deer were only observed on a few isolated occasions and are not thought to commonly use the project area (see Figure 3.2-1). NDOW states that most mule deer in Game Management Unit 111 are found between 7,500 feet and 10,500 feet above mean sea level (amsl) (NDOW 2009). Over the two years of fieldwork in the project area, elk were never observed in the project area by SWCA, and it is suspected that they use habitat in the project area to a limited degree. They were, however, observed immediately adjacent to the project area, west of SR 893, and are known to occur in relatively high densities in Game Management Unit 111, which encompasses the project area. Spatial data from the Ely RMP show that elk and mule deer crucial habitat does not occur within the project area, while year-round pronghorn habitat does (BLM 2008a).

The mountain lion (*Felis concolor*) is a big-game species in Nevada that occurs in White Pine County. In Nevada, lions are found in areas of pinyon pine, juniper, mountain mahogany, ponderosa pine, and mountain brush (NDOW 2010). These habitats occur near the project area but not within it. Lions generally will be most abundant in areas where deer are plentiful. In Nevada, male home ranges can be as large as 115 square miles, and female ranges are much smaller, averaging about 25 square miles (NDOW 2010). Therefore, although the project area does not contain typical mountain lion habitat, habitat is nearby and the project area could occur within mountain lion territory.

3.2.4 Waterfowl and Shorebirds

The PEIS identifies portions of Nevada as occurring within the Pacific Flyway (Figure 4.6.2-1 of the PEIS). The easternmost route of this flyway is thought to diverge west around the Great Salt Lake in Utah and continue southwest toward the Lahontan Valley, east of Reno, before joining the major flyway traveling through California's Central Valley. Therefore, while migrant waterfowl and shorebirds undoubtedly fly through Spring Valley, no major or principal migration route within the Pacific Flyway is thought to occur in Spring Valley.

Biologists conducted more than 170 hours of general bird surveys over nearly two years of preconstruction studies. During migratory passerine surveys, general use surveys, and breeding bird point-counts, all birds observed were recorded, including all species of waterfowl and shorebirds. Surveys were conducted during all months of the year in all weather conditions. In total, 21 different species of waterfowl and shorebirds (includes cranes, ducks, egrets, geese, gulls, and shorebirds) were identified (Table 3.2-1). Two of these species were identified during breeding bird point-counts: long-billed curlew (*Numenius minutus*) and sandhill crane (*Grus canadensis*). While both of these species use the project area to some degree, no evidence of breeding was observed for either species within the project area; however, both species are known to breed from the Shoshone, Nevada, area (Floyd et al. 2007), approximately 15 miles south of the project area. Long-billed curlews are also discussed in the Special-status Species Section (Section 3.3.2). An adult killdeer (*Charadrius vociferus*) was incidentally observed with fledglings near 4wd Spring, at the north end of the project area. For an in-depth examination of the results of bird surveys in the project area, refer to the *Spring Valley Wind Power Generating Facility Final Pre-construction Survey Results Report* (SWCA 2009a).

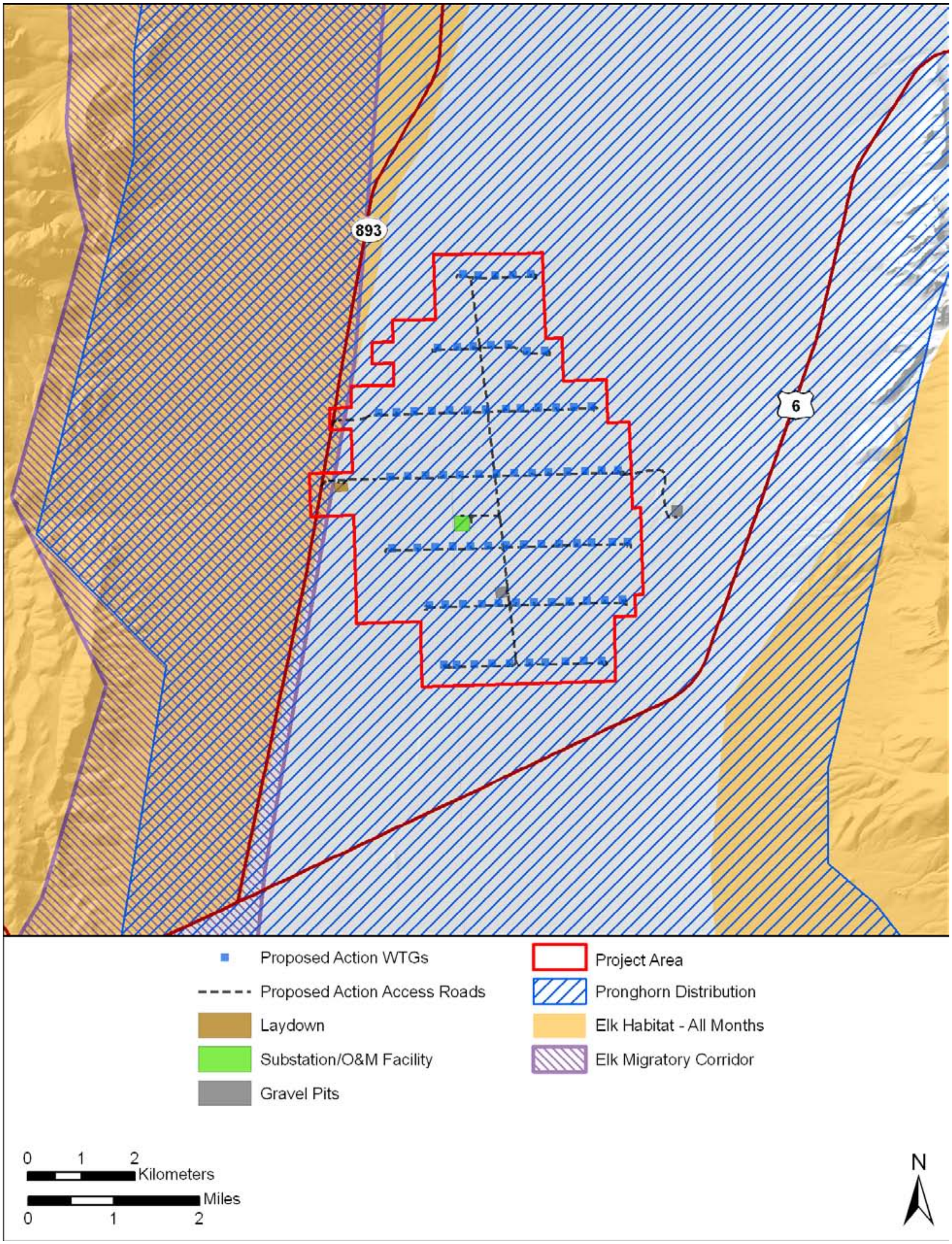

Figure 3.2-1. Big-game use areas.

Table 3.2-1. Waterfowl and Shorebirds Recorded in the Project Area

Common Name	Scientific Name
American wigeon	*Anas americana*
Blue-winged teal	*Anas discors*
Bufflehead	*Bucephala albeola*
California gull	*Larus californicus*
Canada goose	*Branta canadensis*
Cinnamon teal	*Anas cyanoptera*
Eared grebe	*Podiceps nigricollis*
Franklin's gull	*Larus pipixcan*
Gadwall	*Anas strepera*
Great egret	*Ardea alba*
Green-winged teal	*Anas crecca*
Killdeer*	*Charadrius vociferus*
Least sandpiper	*Calidris minutilla*
Long-billed curlew	*Numenius minutus*
Mallard	*Anas platyrhynchos*
Northern pintail	*Anas acuta*
Northern shoveler	*Anas clypeata*
Ring-necked duck	*Aythya collaris*
Sandhill crane	*Grus canadensis*
Snow goose	*Chen caerulescens*
Willet	*Tringa semipalmata*

*Denotes species observed breeding or not observed but expected to breed in the project area.

3.2.5 Songbirds

Biologists conducted more than 170 hours of bird surveys during nearly two years of preconstruction studies. For migratory passerine surveys, general use surveys, and breeding bird point-counts, all observed birds were recorded, including all songbirds. Surveys were conducted during all months of the year in all weather conditions. In total, 56 different species of songbirds were identified (Table 3.2-2), 22 of which were identified during breeding bird point-counts. While direct evidence of breeding was not observed for all of these species, breeding bird point-counts were performed during the middle of the breeding season, and it is suspected that most or all of these species were breeding in or near the project area. In total, including incidental sightings, there were seven species of songbirds confirmed to be breeding in the project area, Brewer's sparrow (*Spizella breweri*), common raven (*Corvus corax*), lark sparrow (*Chondestes grammacus*), loggerhead shrike (*Lanius ludovicianus*), sage sparrow (*Amphispiza belli*), sage thrasher (*Oreoscoptes montanus*), and black-billed magpie (*Aphanotriccus audax*). For an in-depth examination of the results of bird surveys in the project area, refer to the *Spring Valley Wind Power Generating Facility Final Pre-construction Survey Results Report* (SWCA 2009a).

Table 3.2-2. Songbirds Recorded in the Project Area

Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
American robin	*Turdus migratorius*
Ash-throated flycatcher	*Myriarchus cinerascens*
Barn swallow	*Hirundo rustica*
Belted kingfisher	*Ceryle alcyon*
Black-billed magpie*	*Aphanotriccus audax*
Black-throated sparrow*	*Amphispiza bilineata*
Blue-gray gnatcatcher*	*Polioptila caerulea*
Bohemian waxwing	*Bombycilla garrulus*
Brewer’s blackbird	*Euphagus cyanocephalus*
Brewer's sparrow*	*Spizella breweri*
Bullock’s oriole	*Icterus bullockii*
Chipping sparrow	*Spizella passerina*
Clark’s nutcracker	*Nucifraga columbiana*
Cliff swallow	*Petrochelidon pyrrhonota*
Common grackle	*Quiscalus quiscula*
Common nighthawk*	*Chordeiles minor*
Common poorwill*	*Phalaenoptilus nuttallii*
Common raven*	*Corvus corax*
Common yellowthroat	*Geothlypis trichas*
European starling	*Sturnus vulgaris*
Gray flycatcher*	*Empidonax wrightii*
Green-tailed towhee	*Pipilo chlorurus*
Horned lark*	*Eremophila alpestris*
House finch	*Carpodacus mexicanus*
Juniper titmouse	*Baeolophus ridgwayi*
Lark sparrow*	*Chondestes grammacus*
Lincoln’s sparrow	*Melospiza lincolnii*
Loggerhead shrike*	*Lanius ludovicianus*
MacGillivray’s warbler	*Oporornis tolmiei*
Mountain bluebird	*Sialia currucoides*
Mountain chickadee	*Poecile gambeli*
Mourning dove*	*Zenaida macroura*
Nashville warbler	*Vermivora ruficapilla*
Northern flicker*	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Orange-crowned warbler	*Vermivora celata*
Pinyon jay	*Gymnorhinus cyanocephalus*
Red-naped sapsucker	*Sphyrapicus nuchalis*

Table 3.2-2. Songbirds Recorded in the Project Area (Continued)

Common Name	Scientific Name
Red-winged blackbird	*Agelaius phoeniceus*
Ruby-crowned kinglet	*Regulus calendula*
Sage sparrow*	*Amphispiza belli*
Sage thrasher*	*Oreoscoptes montanus*
Savannah sparrow	*Passerculus sandwichensis*
Say's phoebe	*Sayornis saya*
Song sparrow	*Melospiza melodia*
Spotted towhee	*Pipilo maculatus*
Townsend's solitaire	*Myadestes townsendi*
Tree swallow	*Tachycineta bicolor*
Vesper sparrow*	*Pooecetes gramineus*
Western kingbird	*Tyrannus verticalis*
Western meadowlark*	*Sturnella neglecta*
Western scrub-say	*Aphelocoma californica*
White-crowned sparrow	*Zonotrichia leucophrys*
Yellow warbler	*Dendroica petechia*
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*
Yellow-rumped warbler	*Dendroica coronata*

*Denotes species observed breeding or not observed but expected to breed in the project area.

It is known that many species of passerines migrate nocturnally. Nocturnally migrating passerines usually fly at great heights, sometimes as high as 3,037 feet (Able 1970). Therefore, it is assumed that nocturnally migrating passerines would not occur within the rotor-swept area (RSA) of the WTGs in the project area with the exception of a flock using the area as a short stopover.

3.2.6 Birds of Prey and Vultures

The PEIS identifies portions of Nevada as occurring within the Pacific Flyway (BLM 2005:Figure 4.6.2-1). The easternmost route of this flyway is thought to diverge west around the Great Salt Lake in Utah and continue southwest toward the Lahontan Valley, east of Reno, before joining the major flyway traveling through California's Central Valley. Additionally, when Jeff Smith, Conservation Science Director with HawkWatch International (HWI), was asked about raptor migration around the project area, he said, "[G]iven our low-volume results from the Ely area, I suspect that the large volume of birds we see in the Goshutes instead mostly travel south down the Snake and Deep Creek ranges farther to the east" (personal communication, Jeff Smith, HWI, to Justin Streit, SWCA 2009).

Specific surveys for raptors included two years of helicopter raptor nest surveys and raptor migration surveys. Raptor migration surveys consisted of 36 survey days over four migration seasons, resulting in over 200 hours of survey. Surveys were conducted throughout each migration season, during all weather conditions, and included days coinciding with peak migration periods at the Goshute Mountain Raptor Migration Site, monitored by HWI. The goal of raptor migration surveys was to identify whether or not Spring Valley occurs in a major migration corridor. After coordinating with HWI representatives, it was determined that a major migration corridor could be identified in a few days of surveys during optimal flight conditions. Raptor migration surveys in Spring Valley resulted in a passage rate of 0.81 bird/hour (SWCA 2009a), well below the numbers observed in the nearby Schell Creek and Duck Creek ranges

(3.2 birds/hour) and long-term averages from the Goshute Mountains 90 miles to the north (22.2 birds/hour) (Smith 2008). While raptors migrating through the Schell Creek and Snake ranges undoubtedly use Spring Valley to some degree to rest and forage during migration, it is not believed that a large volume of birds are using Spring Valley for such reasons. Large numbers of raptors resting and foraging in Spring Valley would have been counted during migratory passerine surveys, and large increases in raptor abundance were not noted during migration periods.

Helicopter surveys performed specifically for nesting raptors within the project area and a 1-mile buffer revealed multiple nesting pairs of ferruginous and Swainson's hawks (SWCA 2009a). Of 25 raptor nests observed during helicopter surveys conducted in 2007 and 2008, three inactive nests and only one active raptor nest were observed in the current project area—a Swainson's hawk nest in the northern portion of the project area that fledged two chicks. The remaining nests are located within the initial northern project area or the 1-mile buffer but outside the current project area. Additionally, it is suspected that both northern harriers and American kestrels breed in the project area, although definitive evidence was never directly observed. No golden eagles were observed nesting within the project area or surrounding 1-mile buffer, and no golden eagles were observed during breeding bird point-counts. Nesting raptor data provided by NDOW shows one known nest approximately 4 miles from the project area and another 8 miles away. However, these nests have not been checked for activity in almost 30 years. During surveys for the Atlas of the Breeding Birds of Nevada from 1997 to 2000, Floyd et al. (2007) found the closest breeding pair of golden eagles in the Schell Creek Range, northwest of the project area. This nest appears to be more than 10 miles away from the project area, but the exact location is unknown.

NDOW has said that western screech-owls (*Megascops kennicottii*) have been detected from the nearby Swamp Cedar ACEC, and they have been added to Table 3.2-3 as well. However, because occurrence data cannot be found for this species in the area and habitat in Spring Valley is limited (Floyd et al. 2007), it is assumed that this species rarely enters the project area. Additionally, raptor observations were recorded during other bird surveys, including migratory passerine surveys, general-use surveys (covered winter months), and breeding bird point-counts. Throughout all surveys, 15 different species of birds of prey and vultures were identified (Table 3.2-3). Five of these species were observed during breeding bird point-counts, including American kestrel (*Falco sparverius*), ferruginous hawk (*Buteo regalis*), northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), and turkey vulture (*Cathartes aura*). For an in-depth examination of the results of bird surveys in the project area, refer to the *Spring Valley Wind Power Generating Facility Final Pre-construction Survey Results Report* (SWCA 2009a).

Table 3.2-3. Birds of Prey and Vultures Recorded in the Project Area

Common Name	Scientific Name
American kestrel*	*Falco sparverius*
Bald eagle	*Haliaeetus leucocephalus*
Cooper's hawk	*Accipiter cooperii*
Ferruginous hawk	*Buteo regalis*
Golden eagle	*Aquila chrysaetos*
Great horned owl	*Bubo virginianus*
Long-eared owl	*Asio otus*
Northern harrier*	*Circus cyaneus*
Prairie falcon	*Falco mexicanus*
Red-tailed hawk	*Buteo jamaicensis*
Rough-legged hawk	*Buteo lagopus*

Table 3.2-3. Birds of Prey and Vultures Recorded in the Project Area (Continued)

Common Name	Scientific Name
Sharp-shinned hawk	*Accipiter striatus*
Swainson's hawk*	*Buteo swainsoni*
Turkey vulture	*Cathartes aura*
Western burrowing owl	*Athene cunicularia hypugaea*
Western screech-owl+	*Megascops kennicottii*

* Denotes species observed breeding or not observed but expected to breed in the project area.

\+ This species was not observed during field surveys.

3.2.7 Regulatory Framework for Protection of Birds

Based on existing data and preconstruction surveys (SWCA 2009a), the project area does not occur within a major migration corridor. The regulatory framework for protecting birds includes the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA) (which includes any part, nest, or egg), the Bald and Golden Eagle Protection Act of 1940, and EO 13186. The PEIS discusses the ESA in Section 4.6.5.1, and other regulations stated above are discussed in Section 4.6.2.2.6 of the PEIS. All of the birds observed during preconstruction surveys are protected by the MBTA, with the exception of the European starling (*Sturnus vulgaris*). The MBTA prohibits the take of migratory birds and does not include provisions for allowing unauthorized take. This project affords substantial design measures to avoid the likelihood of take, and if take occurs, it would be reported to the USFWS for further action. Additionally, the BLM and USFWS are developing a project ABPP (see Appendix F) to meet BLMs requirements for addressing the MBTA. The BGEA is similar to the MBTA in that it prohibits the take of bald and golden eagles. However, on September 11, 2009, a final rule was published in the *Federal Register* (50 CFR 13 and 22) that allows the USFWS to issue permits for the take of bald eagles. Although the BGEA's regulations do provide a process for obtaining incidental take permits for eagles, the USFWS is not currently issuing such permits. This project affords substantial design measures to avoid the likelihood of take, and if take occurs, it would be reported to the USFWS for further action. The ABPP also addresses BLMs requirements for addressing the BGEA under BLM IM 2010-156.

3.2.8 Bats

As recommended by the PEIS (BLM 2005), bat use of the project area was evaluated with the goal of developing the project in a way that minimizes or mitigates impacts to bats, which have been killed in high numbers at some wind energy facilities. The project area is located within or immediately adjacent to a major Brazilian free-tailed bat (*Tadarida brasiliensis*) migratory corridor. Rose Guano Cave (located approximately 4 miles east of the nearest proposed WTG within the project area) serves as a migratory stopover for over 1 million individual Brazilian free-tailed bats during fall migration (Sherwin 2009).

In order to identify bat use of the project area, comprehensive bat acoustic surveys of the project area were initiated July 2007 and continued through December 2008 using 10 AnaBat acoustic detectors. In total, 5,072 detector nights of data were collected from these efforts. AnaBat detectors were placed within different habitat types and near water resources, which were expected to attract high numbers of bats. Both perennial and ephemeral water resources typically have concentrated bat activity and can generate substantial volumes of data (O'Farrell and Gannon 1999), which can be useful for creating a complete species inventory. In addition to acoustic surveys, a recent survey was conducted by Sherwin (2009) in conjunction with the BLM and NDOW, which evaluated the use of the Rose Guano Cave by the Brazilian free-tailed bat. That study is described further in the special-status species section for bats (Section 3.3.6).

Acoustic surveys identified 12 of the 23 bat species known to occur in Nevada (all from the Verspertilionidae and Molossidae families). Acoustic data indicate that approximately 91% of all recorded activity could be attributed to four bat species: western small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), and Brazilian free-tailed bat (Table 3.2-4). The high activity levels associated with these four species indicates that they are relatively common within the project area, at least seasonally.

Table 3.2-4. Bat Species Activity Levels

Common Name	Scientific Name	% of Total Data
Western small-footed myotis	*Myotis ciliolabrum*	41.5
Little brown bat	*Myotis lucifugus*	25.6
Long-eared myotis	*Myotis evotis*	12.5
Brazilian free-tailed bat	*Tadarida brasiliensis*	11.4
Long-legged myotis	*Myotis volans*	3.4
Big brown bat	*Eptesicus fuscus*	2.1
Silver haired bat	*Lasionycteris noctivagans*	1.4
Pallid bat	*Antrozous pallidus*	1.2
Hoary bat	*Lasiurus cinereus*	0.5
Townsend’s big-eared bat	*Corynorhinus townsendii*	0.4
Western red bat	*Lasiurus blossevillii*	0.0*
Yuma myotis	*Myotis yumanensis*	0.0*

* This bat species was detected but contributed less than 0.1% of the total data.

While any species of bat could be injured or killed from wind turbines, six species observed, including the little brown bat, big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris nocitvagans*), hoary bat (*Lasiurus cinereus*), western red bat (*Lasiurus blossevilli*), and Brazilian free-tailed bat, have been documented as mortalities at other wind energy facilities in the western United States (Arnett et al. 2008; BLM 2005; Kerlinger et al. 2006) and should be considered to be at increased risk of mortality. Four of these species are state protected, including the Brazilian free-tailed bat, pallid bat (*Antrozous pallidus*), Townsend’s big-eared bat (*Corynorhinus townsendii*), and western red bat. State-protected bat species are described in detail under Sensitive Species section in Section 3.3.6.

Statistically significant variations in bat activity levels between AnaBat monitoring stations indicate that environmental site characteristics strongly influence bat activity (SWCA 2009a). Bat use of the project area is not homogeneous, with concentrated activity occurring near water sources and near Rocky Mountain juniper (*Juniperus scopulorum*) (SWCA 2009a). However, due to the highly mobile nature of bats, a given species may be found throughout the project area on any particular night.

Acoustic data also indicate that bat activity in the project area (based on total Index of Activity from all 10 Anabat units) varies greatly between different seasons, with total activity peaking during summer months (Figure 3.2-2). Activity levels also vary within the night, as acoustic data show peak activity occurring at 2.5 hours after sunset, with an additional, smaller peak in activity occurring at 6.5 hours after sunset (SWCA 2009a). Detailed examination of the AnaBat acoustic study results are presented in SWCA (2009a).

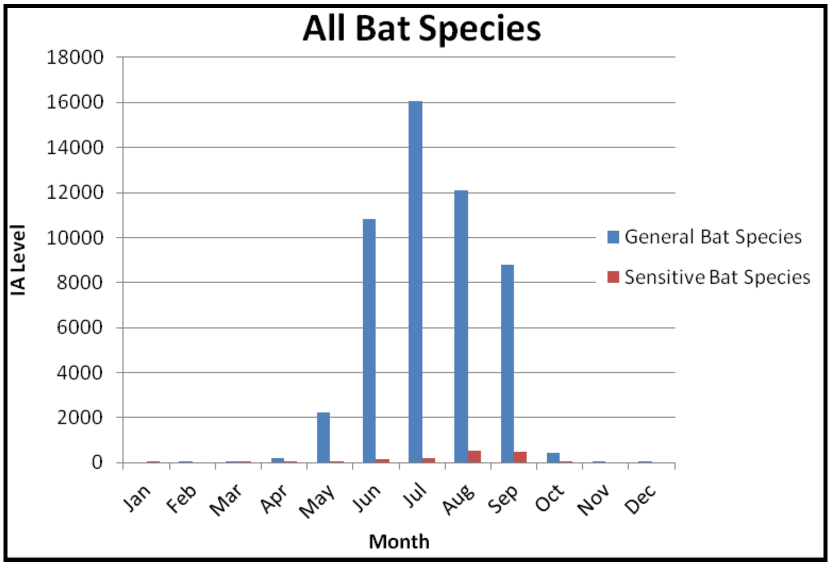

Figure 3.2-2. Seasonal activity patterns of all bat species, 2007–2008 (IA – Index of Activity).

3.3 Special-Status Species

This section discusses specific special-status species of concern that have the potential to occur within the project area. As shown in Table 3.3-1, some species have wide-ranging habitat throughout Spring Valley, while others are limited to special vegetation types. There are no federally listed species that are known to occur in the project area. Species included on the protected species list for the State of Nevada, which is maintained by the Nevada Natural Heritage Program (NNHP), are protected under NRS 501 and Nevada Administrative Code (NAC) 503.093, which states that a person shall not hunt or take any wildlife that is classified as protected, or possess any part thereof, without first obtaining the appropriate license, permit or written authorization from the NDOW. There are 24 wildlife species and one plant species protected by the State of Nevada that have potential to occur in the project area (Table 3.3-2). Those native taxa that are neither federally listed, proposed, or candidate species under the ESA, nor listed as protected by the State of Nevada, yet meet the criteria provided in BLM Manual 6840.06 E are also considered special-status Species by the Nevada BLM (BLM 1998). The BLM 6840 Manual (BLM 2008a) describes special-status species as 1) species listed or proposed for listing under the ESA and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated BLM Sensitive by the State Director(s). One plant species and several wildlife species listed as BLM special status occur or have the potential to occur in the project area. All BLM special-status species are also Nevada State protected species.

3.3.1 Small Mammals

Pygmy rabbit is the only special-status mammal occurring in the project area. It is fully protected by the State of Nevada and is a BLM special-status species in Nevada. It has also been petitioned for listing under the ESA. The USFWS is currently undertaking a 12-month finding to determine whether available information warrants listing of the pygmy rabbit under the ESA.

On August 12, 2008, SWCA biologists conducted surveys for pygmy rabbit habitat and their habitat as described by NDOW (2004) and Ulmschneider (2004), respectively. During the first round of pygmy rabbit surveys, one active and one inactive burrow were observed. The active burrow had multiple entrances, although only one showed recent use. A small amount of light brown pellets was observed around the entrances among numerous faded gray pellets. The inactive burrow was collapsed near the entrance, but there were numerous old gray pellets around the entrance. Biologists returned on December 17, 2008, and confirmed pygmy rabbit activity at the previously identified active burrow, which was evidenced by multiple cleared burrow entrances and numerous tracks and scat.

Table 3.3-1. Special-Status Species Habitat Availability

Habitat Type*	Spring Valley Watershed (acres)	Proposed Action (acres)	Alternate Development Alternative (acres)	Species Association(s)
Pinyon Juniper	120,646	8	2	Songbirds, birds of prey, bats
Sagebrush	174,141	3,643	3,417	Pygmy rabbit, long-billed curlew, songbirds, greater sage-grouse, birds of prey, bats
Mixed Desert Scrub	146,284	4,896	4,244	Songbirds, birds of prey, bats
Greasewood	1,652	17	10	Songbirds, birds of prey, bats
Other Vegetation Communities Outside Project Area	123,614	0	0	All species may use some or all of these communities
Total	**581,213**	**8,564**	**7,673**	

* USGS (2004).

Table 3.3-2. Special-Status Species

Common Name	Scientific Name	Status
Small Mammals		
Pygmy rabbit	*Brachylagus idahoensis*	NV protected; BLM Sensitive
Waterfowl and Shorebirds		
Long-billed Curlew	*Numenius minutus*	NV protected; BLM Sensitive
Sandhill Crane	*Grus canadensis*	NV protected; BLM Sensitive
Willett	*Tringa semipalmata*	NV protected; BLM Sensitive
Songbirds		
Sage thrasher	*Oreoscoptes montanus*	NV protected; BLM Sensitive
Brewer's sparrow	*Spizella breweri*	NV protected; BLM Sensitive
Sage sparrow	*Amphispiza belli*	NV protected; BLM Sensitive
Pinyon jay	*Gymnorhinus cyanocephalus*	NV protected; BLM Sensitive
Juniper titmouse	*Baeolophus ridgwayi*	NV protected; BLM Sensitive
Loggerhead shrike	*Lanius ludovicianus*	NV protected; BLM Sensitive
Vesper sparrow	*Pooecetes gramineus*	NV protected; BLM Sensitive
Red-naped sapsucker	*Sphyrapicus nuchalis*	NV protected; BLM Sensitive
Gallinaceous Birds		
Greater sage grouse	*Centrocercus urophasianus*	NV protected; BLM Sensitive
Birds of Prey and Vultures		
Bald eagle	*Haliaeetus leucocephalus*	NV protected; BLM Sensitive
Ferruginous hawk	*Buteo regalis*	NV protected; BLM Sensitive
Golden eagle	*Aquila chrysaetos*	NV protected; BLM Sensitive
Swainson's hawk	*Buteo swainsoni*	NV protected; BLM Sensitive

Table 3.3-2. Special-status Species (Continued)

Common Name	Scientific Name	Status
Birds of Prey and Vultures, continued		
Prairie falcon	*Falco mexicanus*	NV protected; BLM Sensitive
Northern harrier	*Circus cyaneus*	NV protected; BLM Sensitive
Long-eared owl	*Asio otus*	NV protected; BLM Sensitive
Western burrowing owl	*Athene cunicularia hypugaea*	NV protected; BLM Sensitive
Bats		
Pallid bat	*Antrozous pallidus*	NV protected; BLM Sensitive
Townsend's big-eared bat	*Corynorhinus townsendii*	NV protected; BLM Sensitive
Western red bat	*Lasiurus blossevilli*	NV protected; BLM Sensitive
Brazilian free-tailed bat	*Tadarida brasiliensis*	NV protected; BLM Sensitive
Western small-footed myotis	*Myotis ciliolabrum*	NV protected; BLM Sensitive
Spotted bat	*Euderma maculatum*	NV protected
Western Mastiff bat	*Eumops perotis*	NV protected
Allen's big-eared bat	*Idionycteris phyllotis*	NV protected
California leaf-nosed bat	*Macrotus californicus*	NV protected
Fringed myotis	*Myotis thysanodes*	NV protected

Following modification to the project area, SWCA returned on January 8, 2009, and August 5, 2009, to survey for pygmy rabbit in previously unsurveyed areas, using the same methodology. On the first of these visits, suitable habitat was located within the southeastern portion of the project area. One pygmy rabbit burrow was located during these surveys, and pellets at the burrow entrance appeared to be fairly fresh, although the burrow entrance did not show signs of recent use. During the second visit, suitable habitat was located along the eastern project area boundary and in the extreme southwest corner of the project area. At least two individual pygmy rabbits were seen in this southwestern patch of habitat, verifying that some of the sagebrush identified earlier as potential habitat is in fact occupied by pygmy rabbits.

Up to 3,643.2 acres of potential habitat was identified through GIS analysis of sagebrush vegetation communities (USGS 2004). Of the total, 89.6 acres were identified as high-quality habitat containing tall, dense sagebrush typically used by pygmy rabbits (USFWS 2009). Based on the observation of pygmy rabbits or active burrow systems, 61.0 acres were considered occupied pygmy rabbit habitat (SWCA 2009b).

3.3.2 Waterfowl and Shorebirds

In total, 21 different species of waterfowl and shorebirds (includes cranes, ducks, egrets, geese, gulls, and shorebirds) were identified within the project area. Observations of waterfowl and shorebirds occurred over the course of two years of general-use, breeding bird, and passerine migration surveys, which included more than 170 hours of survey (SWCA 2009a). Of the 21 species, three special-status species—long-billed curlew, sandhill crane, and willet (*Tringa semipalmata*)—were observed in the project area.

The long-billed curlew, while designated as a wading bird, was mostly observed in upland areas. This species will forage around wetland areas but is known to extensively use upland areas for nesting, brood rearing, and foraging. Thirteen individual long-billed curlews were observed during surveys, and more than 30% of these were observed flying in the proposed RSA. This species was also detected twice during breeding bird point-counts. However, as of 2005, long-billed curlew mortalities have not been recorded at other WGFs (Kingsley and Whittam 2005). Almost all observations of this species occurred between March and June, usually in sagebrush habitats.

Sandhill crane was a relatively uncommon species, with only six observations (1.9% of surveys) during migratory passerine surveys (all in March) and one detection (single calling bird) during breeding bird point-count surveys. Only one of the seven sandhill crane detections was of a bird flying in the anticipated RSA. As of 2005, this species had not been a recorded fatality at any WGF (Kingsley and Whittam 2005). This species, which was most commonly observed near wetland areas, is usually associated with water and therefore may only be present in the project area during those times of the year when water is present. Additionally, almost all observations of this bird occurred within portions of the initial project area that are not part of the current project area. This bird also spends a high proportion of time on the ground while foraging and performing courtship displays (Ehrlich et al. 1988).

With only three observations (0.6% of surveys) during migratory passerine surveys, the willet was an uncommon species during preconstruction surveys. This species was never observed in the RSA and was only seen near one ephemeral pond, well north of the current project area.

3.3.3 Songbirds

In total, 56 species of songbirds were identified in the project area. Songbird observations occurred over the course of two years of general-use, breeding bird, and passerine migration surveys, which included more than 170 hours of survey (SWCA 2009a). These 56 species included eight special-status songbirds, including sage thrasher (*Oreoscoptes montanus)*, Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), pinyon jay (*Gymnorhinus cyanocephalus),* juniper titmouse (*Baeolophus ridgwayi*), loggerhead shrike (*Lanius ludovicianus*), vesper sparrow (*Pooecetes gramineus*), and red-naped sapsucker (*Sphyrapicus nuchalis*).

Brewer's sparrows were observed during 5.0% of surveys and were not recorded in the RSA. This species did exhibit breeding behavior during point-counts and was observed more than once during these surveys. Brewer's sparrow has been recorded as having at least one collision with a wind turbine at other WGFs (Kingsley and Whittam 2005).

Sage sparrow was relatively common, as it was observed during 10.0% of surveys. Like the Brewer's sparrow, this species also exhibited breeding behavior and was seen more than once during point-count surveys. As of 2005, the sage sparrow had never been recorded as a mortality at a WGF (Kingsley and Whittam 2005).

Pinyon jays were commonly observed during passerine surveys (11.3%) and were recorded flying in the RSA during 19.1% of observations. Although these birds were recorded throughout the year, they were more frequently observed during the spring and fall. During general use surveys, pinyon jays were more commonly observed during the summer than in winter. As of 2005, there were no recorded mortalities for this species from other WGF studies (Kingsley and Whittam 2005).

Juniper titmouse was relatively uncommon during avian surveys. This species was only observed during 2.5% of surveys, including both migratory and winter general-use surveys. However, this species was not observed in the RSA. Considering that titmice feed by collecting insects from the bark of trees and they are not known to perform aerial displays, the presence of this species in the RSA is expected to be limited. As of 2005, there were no recorded collision mortalities for this species (Kingsley and Whittam 2005).

Loggerhead shrike was observed fairly frequently (during 15.6% of surveys) but was never observed within the RSA during surveys. Although this species was not observed within the RSA, this species does practice aerial pursuit of the female while courting (Ehrlich et al. 1988), which could increase its time in the RSA. However, as of 2005, the only recorded loggerhead shrike mortality at a wind facility occurred in California (Kingsley and Whittam 2005). The majority (76%) of loggerhead shrike observations occurred during migration surveys, although this species was also recorded during summer general-use surveys (24%) following the breeding season. In addition, during breeding bird point-counts, this species was observed displaying breeding behavior.

Vesper sparrows were observed during 3.1% of surveys and were not recorded in the RSA. However, this species has several recorded mortalities at other WGFs (Kingsley and Whittam 2005). Although not observed in the RSA during surveys, this species exhibits aerial courtship displays that would increase the risk of collision with a WTG blade.

Red-naped sapsucker was observed once during migratory passerine surveys (0.6%) and was not observed in the RSA. It is estimated that this species is an uncommon visitor to Spring Valley. In addition, this species has not been an observed mortality at other WGF studies (Kingsley and Whittam 2005).

3.3.4 Gallinaceous Birds

Greater sage-grouse is ranked as a Nevada BLM special-status species, NNHP ranks it as S3S4B (vulnerable to apparently secure but with long-term concerns, breeding species), and NatureServe gives it a ranking of G4 (long-term concern, although now apparently secure). On March 5, 2010, the USFWS made a decision about the 12-month finding for the greater sage-grouse and acknowledged that while federal protection of this species is warranted, its listing was precluded because more threatened species received listing priority. Therefore, the species will be listed as a candidate species, and its status would be reviewed annually. While this does not offer the greater sage-grouse any additional legal protection, it does require state and federal biologists to monitor populations more closely and federal agencies to be more aware of where potentially disturbing activities are taking place in relation to sage-grouse leks (Tavares 2010). Additionally, on March 5, 2010, the BLM Washington Office issued IM 2010-071, Gunnison and Greater Sage-Grouse Management Considerations for Energy Development. The IM identifies management actions necessary to ensure environmentally responsible exploration, authorization, leasing, and development of renewable energy resources within the range of the greater sage-grouse.

Greater sage-grouse are sagebrush obligates that depend on sagebrush habitats for successful reproduction and winter survival (Connelly et al. 2004). Based on Southwest Regional Gap Analysis Project (SWReGAP) data for sagebrush vegetation (USGS 2004), there are 174,141 acres of habitat within the Spring Valley Watershed, of which 3,643 acres are within the project area for the Proposed Action. Additionally, GIS data provided by NDOW for the RMP/FEIS show the project area as summer and winter habitat (BLM 2005); however, those data are recorded at a course scale and it is assumed that habitat is limited primarily to the 3,643 acres of sagebrush. Further, the project area sits between U.S. Route 6/50 on the east and south and County Highway 893 on the west. Both highways are paralleled by transmission lines. Within the project area, multiple dirt roads traverse the area and a series of transmission lines, including the 230-kV line that the project would tie into, bisects the project area. The presence of roads and transmission lines reduce the quality of habitat within the project area. Consistent with that conclusion, the Environmental Screening Analysis for this project identified the highest-quality habitat in this portion of Spring Valley as habitat along the bench areas west of SR 893 (Estep Environmental 2007). A detailed discussion of greater sage-grouse habitat and life history can be found in the Spring Valley Wind Biological Resources Report (SWCA 2009b).

Greater sage-grouse telemetry data were collected by SNWA between 2008 and 2010 as part of a collaborative NDOW-BLM-Great Basin Bird Observatory-SNWA effort. Of all collared birds in the SNWA telemetry data set, male 316B and female 276A had the closest documented observations to the Spring Valley Wind project area. Male 316B was collared on May 7, 2008 and tracked until January 29, 2009, and female 276A was collared on April 2, 2008 and tracked until June 24, 2009.

Both birds showed cross-valley movements between the eastern locations and the western locations in the general region of the proposed SVWEF. Male 316B was documented in three locations: 1) approximately 5 miles north of the project area on and near the Cleve Creek lek, 2) approximately 5 to 6 miles northwest of the project area, and 3) approximately 10 to 15 miles north of the project area. Female 276A was documented in three locations: 1) approximately 2 miles southeast of the project area, 2) approximately 5 miles north of the project area near Cleve Creek lek, and 3) approximately 10 miles north of the project area. All of these locations correspond to the benches along either side of the valley.

Uncollared birds were also observed with collard birds, except when female 276A was observed at the location 2 miles southeast of the project area. No collared birds were recorded in the project area nor were any uncollared sage-grouse recorded based on the dataset provided by SNWA. However, the cross-valley movements suggest that individuals may pass through the area. These data support that while there is potentially available habitat in the middle of the valley, the higher quality sage-grouse habitat is found along the benches and the majority of nearby sage-grouse activity is found to occur at least 4 to 5 miles from the project area.

Data provided by NDOW on greater sage-grouse indicate that the lek system in Spring Valley consists of 38 leks with a combined breeding count estimate of 256 birds, most situated north of the project area. The RMP/FEIS data on greater sage-grouse indicate that three lek sites have been identified within 1 mile of the western and eastern project area boundaries. The Bastian Creek lek is known to be active and is located approximately 8,202 feet from the western project area boundary on the west side of SR 893. NDOW data for this lek indicate that it is regularly used and has averaged three birds per year for the past 10 years. The Cooper Canyon lek site is located to the south of the Bastian Creek lek, approximately 5,900 feet from the western project area boundary, on the west side of SR 893. RMP/FEIS data for this lek shows that it was last active in 1983 and no activity was observed in surveys conducted in 2003. Additionally, SNWA did not record any birds at this lek during their recent telemetry study. The Osceola lek site is located approximately 5,900 feet from the eastern project area boundary, within the U.S. Route 6/50 ROW. The activity of this site is listed as unknown, and the last lek surveys were done in 1955. Again, SNWA did not record any birds at this lek during its recent telemetry study. At this time, it is assumed that both the Cooper Canyon and Osceola leks are inactive. Two additional leks are located approximately 5 miles north of the project area. These include the Cleve Creek lek and a satellite of this lek, named Cleve Creek South. NDOW data for these leks show that Cleve Creek has averaged 23 birds per year for the past 10 years, while Cleve Creek South averaged three birds per year for the past 10 years. No active or inactive leks occur in the project area, and no individuals were observed during preconstruction avian surveys (SWCA 2009a). Based on the recorded greater sage-grouse activity, the project area is situated in a lower use area for sage-grouse than other parts of Spring Valley.

3.3.5 Birds of Prey and Vultures

In total, 21 birds of prey and vultures were identified in the project area. Bird of prey and vulture observations occurred over the course of two years of spring and fall raptor migration surveys, which included more than 210 hours of survey (SWCA 2009a). Additionally, all birds of prey and raptors observed during general use bird surveys were also recorded. Included in these 21 bird of prey and vulture species are eight special-status raptors, including golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), Swainson’s hawk (*Buteo swainsoni*), prairie falcon (*Falco mexicanus*), northern harrier

(*Circus cyaneus*), bald eagle (*Haliaeetus leucocephalus*), long-eared owl (*Asio otus*), and western burrowing owl (*Athene cunicularia hypugaea*).

Although golden eagles were not observed nesting in the project area or during breeding bird count surveys, they were commonly observed flying overhead by biologists when traveling throughout the project area. During surveys, this species was recorded during 19.4% of raptor migration surveys and 8.1% of passerine surveys. This species was observed in the RSA, constituting 30.8% of the species' observations during passerine surveys and 50.0% of the species' observations during raptor migration surveys. Golden eagles are sensitive to disturbance, particularly while nesting, and will abandon the nest if provoked (Tesky 1994). While golden eagles will nest on tall, artificial structures, such as electrical poles and towers, they prefer to nest on cliff ledges in rocky canyons or even in large trees, neither of which are present in the project area. Furthermore, no nesting golden eagles were observed during two years of helicopter raptor nest surveys or breeding bird point-counts for the project (SWCA 2009a). It is believed that the closest nesting golden eagles probably occur in the Schell Creek and Snake ranges west and east of the project area, respectively (Floyd et al. 2007).

Raptor nest searches during 2007 and 2008 found 25 raptor or common raven nests during helicopter surveys of the project area. Ferruginous hawk and Swainson's hawk were the only identified raptor species nesting during these surveys. The nearest ferruginous hawk nest is approximately 1.3 miles northeast of the project area boundary, and the nearest Swainson's hawk nest is in the very northeast corner of the project area boundary. Both of these nests were recorded as inactive. The nearest active ferruginous and Swainson's hawk nests are approximately 2.1 and 0.75 mile away, respectively. Both Swainson's hawk and ferruginous hawk are described as displaying nesting site tenacity (Ehrlich et al. 1988). The evidence of multiple nests in the area indicates that it may be an important reproduction site for these raptors. In addition, Swainson's hawk activity is of particular interest, as these are uncommon nesters in Nevada; only five territories with active Swainson's hawk nests were recorded during HWI 2005 nest surveys in northeastern Nevada. The observation of three active nests in Spring Valley seems to indicate a relatively high concentration of this species in or near the project area.

Ferruginous hawks were not observed within the RSA during migration surveys; however, this species was observed within the RSA during passerine surveys.

During raptor migration surveys, ferruginous hawks were observed on 16.7% of surveys and constituted only 1.3% of observations during passerine surveys. This species was not observed in the RSA during raptor migration and was observed within the RSA once during migratory passerine surveys. Ferruginous hawks were also observed during breeding bird point-counts. Ferruginous hawks have had several recorded mortalities at other WGFs (Kingsley and Whittam 2005).

Swainson's hawk was fairly frequently observed during raptor migration surveys (13.9%), and 22.2% of these observations were within the RSA. Swainson's hawks were observed during 9.4% of passerine surveys and were also observed during breeding bird point-counts. Records indicate nine recorded fatalities at three other WGF studies: seven of these were juveniles recorded at McBride Lake, one fatality occurred at APWRA, and the other was at Stateline, Washington (Kingsley and Whittam 2005). Swainson's hawks have been recorded as a relatively commonly observed species, with few to no recorded fatalities in other WGF studies (Brown and Hamilton 2004; Erickson et al. 2002; Kingsley and Whittam 2005). All of these carcasses were young-of-year or juveniles. This could possibly indicate that the inexperience of juveniles could increase the risk of collision with a WTG blade for this specific age group (Brown and Hamilton 2004). Considering all of these factors, Swainson's hawk has a higher risk of mortality than other raptor species in the SVWEF.

Prairie falcons were observed during 13.9% of raptor migration surveys, including in the RSA, and were also observed twice during passerine surveys (0.04%), although they were not flying within the RSA during those observations. Prairie falcons have had several recorded mortalities at other WGFs (Kingsley and Whittam 2005), although overall mortality of large falcons has been low at newer-generation wind plants, and only one prairie falcon mortality was observed at Foote Creek Rim, which estimates one prairie falcon mortality per year for every 200 turbines at the site (Erickson et al. 2002).

Northern harriers were observed during 25.0% of raptor migration surveys and 15.0% of migratory passerine surveys. Harriers were observed in the RSA during 40.0% of observations for raptor migration surveys, but only constituted 3.4% of observations during passerine surveys. Northern harriers have been recorded fatalities at other WGFs (Kingsley and Whittam 2005), although northern harriers have few documented mortalities, even in areas with relatively high northern harrier use (Erikson et al. 2002). This could indicate that this species is able to avoid impacts with WTG blades.

A bald eagle was observed once during fall raptor migration surveys (2.8%) and was not using the RSA during this observation. This species was noted incidentally while traveling through the project area on a few occasions, but its presence in the project area is thought to be uncommon. This species may use the project area during the winter but is not a breeding summer resident. There has never been a bald eagle mortality reported at a WGF as of 2005 (Kingsley and Whittam 2005).

Although the long-eared owl was not observed during avian surveys, biologists saw and heard this species while camping and traveling within the project area. One long-eared owl fatality has been recorded from the Tehachapi Pass Wind Resource Area in California (Anderson et al. 2004; Kingsley and Whittam 2005). However, as of 2005, no fatalities of this species have been recorded from WGFs outside California. Still, limited information exists on nocturnal avian species; therefore, little is known of the disturbance impacts and how owl species react to turbines (Kingsley and Whittam 2005). Although not observed on surveys, the peregrine falcon (*Falco peregrinus*), a BLM special-status species, has been recorded in Spring Valley and would be expected to be a rare visitor to the area.

A pair of western burrowing owls was also incidentally observed while biologists were traveling in the project area. This pair was observed at a burrow system in the original project area, approximately 4 miles north of the current project boundary. Although there have been burrowing owl fatalities at WGFs in California, none have been reported from other WGFs. Again, little is known of the disturbance impacts and how owl species react to turbines (Kingsley and Whittam 2005).

3.3.6 Bats

Four species of special-status bats have been documented in the project area (SWCA 2009a) and include pallid bat, Townsend's big-eared bat, western red bat, and Brazilian free-tailed bat. These species accounted for approximately 12.7% of all acoustic survey data (Figure 3.3-1). Brazilian free-tailed bats accounted for far more activity relative to the other species; however, acoustic surveys have inherent bias and tend to underestimate the activity of "quiet" bat species such as Townsend's big-eared bat and pallid bat (O'Farrell and Gannon 1999). All four species were detected within the RSA (SWCA 2009a).

Of the special-status bats, the most well known is probably the Brazilian free-tailed bat because of the proximity of the project area to the Rose Guano Cave, which is located approximately 4 miles to the east of the nearest proposed WTG. Rose Guano Cave serves as a migratory stopover for over 1 million individual Brazilian free-tailed bats during fall migration (Sherwin 2009). Preliminary data suggest that bats only remain at the cave for an average of four days before leaving the local area (Sherwin 2009). Preliminary radar data show that bats exit Rose Guano Cave from 1900 to 2130 hours, with the bulk of the exit occurring between 2000 to 2130 hours (Sherwin 2009). Upon exiting Rose Guano Cave, the plume of bats gained altitude to reach approximately 1,200 feet above the valley floor before turning south through the valley (Sherwin 2009). While some portion of the plume dropped to forage in the valley, preliminary data indicate that the majority of bats are traveling to agricultural fields south of the project area for foraging (Sherwin 2009). Although the majority of individuals continue south, the large population of Brazilian free-tailed bats means that a large number of individuals relative to other bat species, but a small percentage of the overall population, may enter the project area. No roosting habitat for this species occurs within the project area. This species is known for its ability to fly up to 50 miles to foraging grounds (NatureServe 2008), sometimes foraging at heights up to 2,400 feet above ground level (McCracken 1996). Additionally, this species has been a reported mortality at other wind energy facilities (Kerlinger et al. 2006; Piorkowski 2006). Survey data indicate that this species accounted for approximately 11% of all preconstruction survey data and was the most common migratory species observed in the project area (SWCA 2009a).

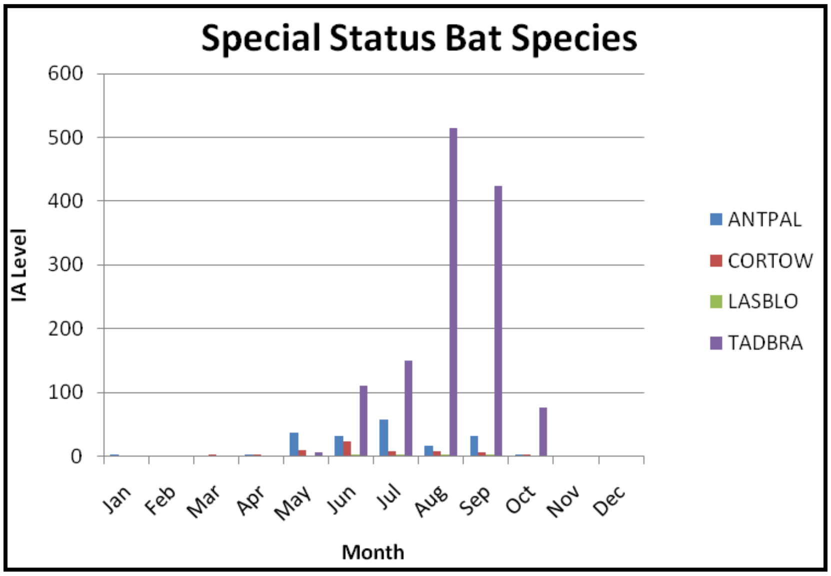

Figure 3.3-1. Special-status bat species, 2007–2008.

Western red bat was a rare occurrence on-site, constituting less than 0.1% of all preconstruction bat survey data (SWCA 2009a). This species is extremely rare in the State of Nevada; observations of this species indicate that it is limited to three counties in Nevada (Bradley et al. 2006). Little is known about the resident and winter status of the western red bat in Nevada, although it is assumed that this species is migratory (Bradley et al. 2006). The western red bat is a tree-roosting species, and potential roosting habitat on or near the site is extremely limited. This species has been reported as a mortality at other wind energy facilities in the western United States (Arnett et al. 2009; BLM 2005).

Pallid bat constituted approximately 1.2% of all preconstruction survey data (SWCA 2009a). Pallid bats are found throughout the State of Nevada and are year-round residents (Bradley et al. 2006). This species often selects caves or mines as roosting locations, although they will use a variety of locations, such as hollow trees, rock crevices, buildings, and bridges (Bradley et al. 2006). Roost habitat for this species is extremely limited in and near the project site. The pallid bat has not been a reported mortality at any wind energy facilities in the current literature (Arnett et al. 2008; BLM 2005).

Townsend's big-eared bats accounted approximately 0.4% of all preconstruction survey data (SWCA 2009a). This species is found throughout Nevada, although their distribution correlates with the availability of caves and mines (Bradley et al. 2006). Despite their wide distribution, Townsend's big-eared bat populations are reported to be in serious decline in the western United States (Bradley et al. 2006). This species is generally associated with caves and mines, although they will use suitably cave-like buildings and trees if available. Potential roosting habitat is extremely limited on-site, but caves and inactive mines do occur within the Snake and Schell Creek ranges adjacent to the project area, of which at least some are known to host maternity colonies. One of the largest roosts for this species (2,500 to 3,000 individuals) is approximately 15 miles north in the Piermont Canyon (personal communication, Jason Williams, NDOW, to Wells McGiffert, BLM 2008). Townsend's big-eared bat has not been a reported mortality at any wind energy facility in the current literature (Arnett et al. 2008; BLM 2005).

3.3.7 Vegetation

Based on GIS data available through the NNHP, Parish phacelia (*Phacelia parishii*) is the only federally or state-protected plant species known to occur within or near the project area. This species is known from 16 occurrences in Nevada, and the total population (occurring in Nevada and Utah) is estimated to be 37 million individuals and declining (NNHP 2001). Within Spring Valley, four populations of Parish phacelia have been recorded to the north and south of the project area (NNHP 2001).

No species-specific surveys were conducted for this plant; however, suitable habitat for this low-growing annual phacelia is present and is described as "salt-crusted silty-clay soils on valley bottoms, lake deposits, and playa edges . . . surrounded by saltbush scrub vegetation" (NNHP 2001). Although approximately 57% of the project area is composed of salt desert shrub vegetation (USGS 2004), no occurrences of salt desert shrub were observed to occur around playas or areas with standing water where the species typically occurs. Based on these observations, suitable habitat for Parish phacelia may occur in the project area but is very limited.

3.4 Grazing

Livestock grazing and production is the dominant land use in and around the project area (Estep Environmental 2007). Spring Valley has primarily been used as rangeland, both historically and currently, for cattle and sheep grazing. Rangelands are divided into allotments for management purposes. The proposed project area overlaps two existing grazing allotments, Majors and Bastian Creek. Grazing use for both of these allotments is managed in accordance with the *Fundamentals of Rangeland Health and Standards and Guidelines for Grazing for Nevada's Northeastern Great Basin Area* (43 CFR 4180, Appendix C:Northeastern RAC Standards and Guidelines).

The Majors Allotment (Allotment No. 10126) totals 104,861 acres. This allotment contains 99,193 acres of BLM land and 5,668 acres of private land (BLM 2009a). There are 12,535 permitted and active use animal unit months (AUMs) on this allotment, which is grazed by both cattle and sheep (BLM 2009a). Approximately 2,552 acres (less than 3%) of the Majors Allotment occurs in the western portion of the project area. Forage within this area includes Inter-Mountain Basin big sagebrush shrubland (98.6 acres) and Great Basin Xeric mixed sagebrush shrubland (484.6 acres), which make up 22.8% of the allotment within the project area. The remaining vegetation is Great Basin Pinyon-Juniper Woodland (1.8 acres), Inter-Mountain Basin Greasewood Flat (5.0 acres), and Inter-Mountain Basins mixed salt desert scrub (1,962.1 acres).

The Bastian Creek Allotment (Allotment No. 10121) totals 13,527 acres on public land (BLM 2009a). There are 1,778 permitted and active AUMs within this allotment, which is grazed by cattle (BLM 2009a). Approximately 6,012 acres, or 44% of the allotment, occurs within the eastern portion of the project area. Forage within this area includes Inter-Mountain Basin big sagebrush shrubland (2,628.6 acres) and Great Basin Xeric mixed sagebrush shrubland (431.3 acres), which make up 50.9% of the allotment within the project area. The remaining vegetation is Great Basin Pinyon-Juniper Woodland (6.0 acres), Inter-Mountain Basin Greasewood Flat (12.5 acres), and Inter-Mountain Basin mixed salt desert scrub (2,934.0 acres). A 575.9-acre vegetation treatment area developed to provide better forage is also present within this allotment.

3.5 Water Resources

3.5.1 Surface Water

The project area is located within the Spring Valley Hydrographic Area (Hydrographic Area 184). Surface water in Spring Valley consists of springs and creeks. Groundwater discharges to the surface at several springs in the Schell Creek Range, Snake Range, and on the valley bottom and is an important source of surface water for the region. Although there are many springs within the hydrographic area, only two springs occur within the project area, both in the northern portion (Kleinfelder 2010). Creeks in the hydrographic area generally emanate from springs in the Schell Creek and Snake ranges. The sources of most creeks in Spring Valley occur in the Schell Creek Range on the northwest side of the valley (SNWA 2008). Spring Creek, which is fed intermittently by a spring located approximately 4 miles south of the project area, passes through a small section of the eastern portion of the project area. Additionally, Cooper Canyon Wash, an ephemeral wash, passes through the southwest portion of the project area and terminates approximately 0.2 mile south of the project area boundary. Other creeks in the vicinity of the project area include Cleve Creek, the largest creek in Spring Valley, which is diverted for agricultural uses at the Cleveland Ranch, and Bastian Creek, which is diverted to the Bastian Creek Ranch (Kleinfelder 2010).

3.5.2 Groundwater

Groundwater resources within Spring Valley are stored within two aquifers: a basin-fill aquifer, which consists of alluvial deposits within the Spring Valley basin, and a deeper carbonate rock aquifer. Groundwater in the basin-fill aquifer occurs at shallow depths throughout Spring Valley. Based on groundwater boring data, 50% of the borings showed depth to groundwater within the project area ranges from approximately 14.5 to 40.5 feet below ground surface. The remaining 50% of the borings did not encounter groundwater until 50 feet (Kleinfelder 2010). The carbonate rock aquifer underlies the basin-fill aquifer.

Groundwater within the basin-fill aquifer is recharged by snowmelt and precipitation primarily occurring in the Schell Creek and Snake Mountain ranges to the west and east of the project area. Groundwater in Spring Valley is pumped and used for irrigation. The total amount of groundwater recharge is estimated to be between 75,000 and 93,000 acre-feet per year (AFY). Groundwater within the basin-fill aquifer discharges to the surface at several springs within Spring Valley and the ranges. The total amount of groundwater discharge is estimated to be between 70,000 to 76,000 AFY.

The project area is located within a groundwater discharge area. Based on the hydrogeology study (Kleinfelder 2010), recharge of the basin aquifer occurs on the basin margins and the project area is in an area of net discharge primarily through evapo-transpiration. Groundwater discharge in the project area flows north to an unnamed playa 13 miles north of the project area. Groundwater under the project area flows north and east toward South Bastian Spring (Kleinfelder 2010).

3.6 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires federal agencies to take into account the effects of their actions on properties listed or eligible for listing in the National Register of Historic Places (NRHP). As part of the SVWEF EA, SWCA conducted extensive work on behalf of BLM to identify and evaluate cultural resources. The methods used during the identification efforts and the area of potential effect (APE) surveyed were established in accordance with the regulations set forth in 36 CFR 800. These regulations guide implementation of the NHPA. Identified cultural resources were then analyzed using the criteria in 36 CFR 60.4 to assess whether the cultural resources were eligible for the NRHP. This documentation satisfied the identification phase of Section 106 of the NHPA and its implementing regulations at 36 CFR 800.

3.6.1 Regulatory Framework

Cultural resources that meet the eligibility criteria for listing on the NRHP are considered "significant" resources and must be taken into consideration during the planning of federal projects. Federal agencies are also required to consider the effects of their actions on sites, areas, and other resources (e.g., plants) that are of religious significance to Native Americans, as established under the American Indian Religious Freedom Act (AIRFA) (PL 95-341). Native American graves and burial grounds are protected by the Native American Graves Protection and Repatriation Act (NAGPRA) (PL 101-601).

The NHPA is the overarching law concerning the management of cultural resources. Numerous other regulatory requirements, however, pertain to cultural properties and are presented below. These laws are applicable to any project undertaken on federal land or requiring federal permitting or funding. The NHPA created the framework within which cultural resources are managed in the United States. Section 106 of the NHPA, defines the process for the identification of a cultural resource and the process for determining whether a project will adversely affect the resource.

3.6.1.1 LAW OR ORDER NAME AND INTENT OF LAW OR ORDER

- Antiquities Act of 1906 as amended—This law makes it illegal to remove cultural resources from federal land without permission. It also allows the President to establish historical monuments and landmarks.
- EO 11593, Protection and Enhancement of the Cultural Environment (1971)—EO 11593 requires federal agencies to inventory their cultural resources and to record, to professional standards, any cultural resource that may be altered or destroyed.
- Archaeological and Historic Preservation Act (1974) as amended (AHPA)—The AHPA directly addresses impacts to cultural resources resulting from federal activities that would significantly alter the landscape. The focus of the law is the creation of dams and the impacts resulting from flooding, worker housing, creation of access roads, etc.; however, its requirements are applicable to any federal action.
- Archaeological Resources Protection Act of 1979 as amended (ARPA)—The ARPA established civil and criminal penalties for the destruction or alteration of cultural resources and established professional standards for excavation.
- AIRFA of 1978—The AIRFA protects the right of Native Americans to have access to their sacred places. It requires consultation with Native American organizations if an agency action will affect a sacred site on federal lands.
- NAGPRA of 1990 as amended—NAGPRA requires federal agencies to consult with the appropriate Native American tribes prior to the intentional excavation of human remains and funerary objects. It requires the repatriation of human remains found on the agencies' land.
- EO 13007, Indian Sacred Sites (1996)—EO 13007 requires that an agency allow Native Americans to worship at sacred sites located on federal property.
- EO 13175, Consultation and Coordination with Indian Tribal Governments (2000)—EO 13175 requires federal agencies to coordinate and consult with Indian tribal governments whose interests might be directly and substantially affected by activities on federally administered lands.

3.6.2 NRHP Criteria for Evaluation

For purposes of this process, a “Significant Cultural Resource” protected by NHPA is generally 50 years of age or older (with a few special exceptions), retains a certain amount of physical integrity, and meets NRHP criteria for evaluation (36 CFR 60.4) which state, in part,

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, materials, workmanship, feeling, and association, and
>
> Criterion A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> Criterion B. that are associated with the lives of persons significant in our past; or
>
> Criterion C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> Criterion D. that have yielded, or may be likely to yield, information important in prehistory or history.

While historic period sites may be determined NRHP eligible under virtually any of these criteria, prehistoric archaeological sites are almost always evaluated with respect to Criterion D. In other words, to be considered NRHP eligible, a prehistoric site must have yielded, or have the potential to yield, important information about some aspect of prehistory or history, including events, processes, institutions, design, construction, settlement, migration, ideals, beliefs, lifeways, and other facets of the development or maintenance of cultural systems. Any consideration of a property’s eligibility under Criterion D must address 1) whether the property may provide information to contribute to our understanding and knowledge of history or prehistory, and 2) whether that information is important.

3.6.3 Overview of the Prehistory and History of the Area

Spring Valley is located in the eastern Great Basin (Aikens and Madsen 1986). Evidence of prehistoric human occupation in this region dates from the terminal Pleistocene era to the period of Euro-American exploration and settlement. Important sources on eastern Great Basin prehistory include Aikens and Madsen (1986) and Madsen et al. (2005), as well as works on the Great Basin as a whole (e.g., Beck and Jones 1997; Grayson 1993; Kelly 1997; Madsen and Simms 1998). A summary of current knowledge about the prehistory of Spring Valley and the surrounding region can be found in the archaeological inventory report on file with the BLM Ely District (SWCA 2009d).

Spring Valley falls within the ethnographic aboriginal territory of the Western Shoshone as reported by d’Azevedo (1986:ix). It appears to fall outside the “Aboriginal Western Shoshone Territory” defined by Crum (1994:3), although Crum does discuss the Ely, Steptoe, and Spring Valley areas in his history of the Western Shoshone.

In 1860, the Pony Express, the Telegraph, and the Overland Stage brought explorers and prospectors into the western United States; for the next 40 years, discoveries of minerals such as gold, silver, and lead created many small boomtowns such as Hamilton and the Osceola Mining District. Then, in 1906, with the arrival of the Nevada Northern Railway, the economy of Ely, McGill, Ruth, and many other towns of the copper period flourished.

3.6.4 Identification of Cultural Resources

Spring Valley contains a rich history that goes back over 8,000 years. The historic period (the last 200 years) of the valley includes the Pony Express, mining, ranching, Native American villages, and Euro-American and Native American interactions. During the prehistoric period (prior to the arrival of Euro-Americans) the valley was utilized by the Native Americans for hunting and gathering of food and other resources. The Native Americans lived in small winter villages and in family groups throughout the valley.

Section 106 of the NHPA, as amended, requires the BLM to conduct cultural resource inventories to ascertain the existence of cultural resources within the area of potential effect (APE) for the project area. Cultural resources may include archeological sites, historic buildings and structures, and places important to modern groups such as Native American tribes. The BLM then takes into account the effects of the proposed project on properties listed or eligible for listing in the NRHP. The BLM then determines if the sites will be avoided or mitigated.

A Class III cultural resource inventory (pedestrian surveys for archeological sites) was conducted for the SVWEF. The area inventoried was defined by a perimeter encompassing the entire project and the area contained within. This included areas that would not be directly impacted by SVWEF. The results of the inventory were used to refine the tower, road and ancillary building locations to avoid all known eligible sites for NRHP cultural resources. Identification of the cultural resources within the SVWEF study area was conducted in 2009 by SWCA for the entire project area as initially defined (Villagran et al. 2009).

The Class III inventory, tribal consultation and an ethnographic study of the area revealed concerns and interests of the Native Americans regarding the area of Spring Valley where the proposed SVWEF is to be located. As a result of these concerns and interests, cultural resource monitors would be present during all ground-disturbing activities. If any discoveries are made as a result of the ground-disturbing activities, work would stop immediately and the BLM cultural resource specialist assigned to the project would be notified. The BLM would then take the appropriate action regarding the discovery.

An inventory to identify historic sites that may be impacted by visual effects was also conducted. Thirteen properties were identified within the APE; however, only six of those properties were within view of the facility and access was granted to.

In addition to the cultural resource sites that have been identified, the Great Basin National Heritage Area encompasses White Pine County, Nevada and Millard County, Utah, and contains a variety of archaeological, historical, cultural, natural, and scenic features that are representative of the Great Basin. This designation does not provide for any authority to regulate land uses, but it does promote heritage tourism and visitation to the representative sites throughout the area.

3.7 Native American Religious Concerns

As part of the SVWE EA, SWCA conducted research on behalf of the BLM to identify and evaluate ethnographic resources. Please refer to the Cultural Resources section above for applicable laws and statutes.

Traditional cultural properties and other areas of concern to Native Americans and other cultural groups can include a wide range of tangible and intangible resources (e.g., archaeological sites, funerary objects, medicinal plants, and sacred landscapes). Government-to-government consultation is the only means of identifying the affected environment for a particular site-specific project. It is difficult, if not impossible, to place boundaries on locations of traditional significance. Where boundaries have been defined, tribal members may not be willing to disclose such information for a variety of reasons. Cultural sensitivity to the need to protect important places is required. Types of valued traditional resources may include, but are not limited to, archaeological sites, burial sites, traditional harvest areas, trails, certain prominent geological features that may have spiritual significance (i.e., sacred landscapes), and viewsheds of sacred locations.

The NHPA establishes the processes for consultation among interested parties, the agency conducting the undertaking, and the State Historic Preservation Officer (SHPO), and for government-to-government consultation between U.S. government agencies and Native American tribal governments.

3.7.1 Overview of Ethnographic History of the Area

A short context is provided in Section 3.6.3 above. In 1938, Steward reported 16 villages in Spring Valley, including one directly northwest of the project area. During the late nineteenth century, several massacres of Native Americans occurred near this area. Traditional plant collecting areas and fandango locations are reported to be nearby (SWCA 2009c).

The Swamp Cedar ACEC has been the site of numerous historical uses. This ACEC is situated directly east and northeast of the proposed SVWEF. Shoshone families once inhabited the area, prior to a massacre by U.S. soldiers, which occurred after conflicts arose between white settlers, Bannock Shoshone, and Ute (BLM 2007:Appendix Q). While the exact location is unknown, this altercation, referred to as the Goshute War of 1863, was known to take place within or in the vicinity of the Swamp Cedar ACEC (BLM 2007:Appendix Q). This massacre resulted in the death of 23 Goshute, and injury to one soldier and horse (BLM 2007:Appendix Q). Additionally, several prehistoric sites have been recorded in the Swamp Cedar ACEC (BLM 2007:Appendix Q).

3.7.2 Analysis and Methodology

A Class III inventory (Villagran et al. 2009) for cultural resources and an ethnographic context (Lauran et al. 2009) of the project area was conducted by SWCA to determine the nature of site types and distribution. Sensitivity maps were derived from this information and analysis of previously published ethnographic information. These and the data contained in the report can be used to determine possible effects for each of the alternatives.

3.8 Visual Resources

Visual resources (the landscape) consist of landform (topography and soils), vegetation, and human-made structures (roads, buildings, and modifications of the land, vegetation, and water). These elements of the landscape can be described in terms of their form, line, color, and texture. Normally, the more variety of these elements there is in a landscape, the more interesting or scenic the landscape becomes if the elements exist in harmony with each other. The BLM manages landscapes for varying levels of protection and modification, giving consideration to other resource values, land uses, and the scenic quality of the landscape.

The analysis area for visual resources includes lands where potential changes to the landscape from the wind facility may be discerned. A viewshed analysis was conducted using GIS data to assess where the wind facility would be visible in the landscape, and this analysis was verified in the field (SWCA 2009e). The area of analysis for visual resources consists of an 11-mile radius around the project area, which roughly marks the maximum distance away from which an observer could clearly distinguish the WTG structures and associated infrastructure and includes portions of GBNP, the boundary of which is less than 5 miles from the project area.

The BLM uses a VRM system to inventory and manage visual resources on public lands. The primary objective of VRM is to maintain the existing visual quality of BLM-administered public lands and to protect unique and fragile visual resources. The VRM system uses four classes to describe different degrees of modification allowed to the landscape. VRM classes are visual ratings that describe an area in terms of visual or scenic quality and viewer sensitivity to the landscape (the degree of public concern for an area's scenic quality). Once an area has been assigned a VRM class, the management objectives of that class can be used to analyze and determine visual impacts of proposed activities and to gauge the amount of disturbance an area can tolerate before it exceeds the visual management objectives of its VRM class (BLM 1980). VRM class designations are based on the area's visual sensitivity and are the result of a combination of factors, including the degree of visitor interest in and public concern for the area's visual resources, the area's public visibility, the level of use by the public, and the type of visitor use the area receives (BLM 1992). Lands in the project area are designated as VRM Class III and Class IV (BLM 2008b). The Class III management objective "is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape". The VRM Class IV objective is "to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high" (BLM 1980).

3.8.1 Landscape Character

The dominant landscape characteristic within and surrounding the proposed project area is typical of the basin and range, with the broad valley floor extending north and south to the horizons flanked by the steep, rugged Schell Creek Range to the west and the Snake Range to the east, defining and containing the views. Vegetation typical of the Great Basin environment occurs throughout the project area. Sagebrush is interspersed with greasewood, shadscale, rabbitbrush, and other shrubs and grasses that contribute to the scenic quality of the area. Naturally exposed white, buff, and tan-colored soils also add scenic contrasts and scenic quality to the area. Additional vegetation consists of the darker green Rocky Mountain juniper or swamp cedar present on the valley floor. The existing landscape has been modified through past and current human habitation, road development, ranching and mining activities, and transmission lines.

The primary views of the Proposed Action would be from two travel routes, U.S. Route 6/50 and SR 893. Many travelers on these routes are on their way to the GBNP and other recreation destinations in eastern Nevada, and have a high expectation of the natural or undeveloped landscapes of the Great Basin. Five Key Observation Points (KOPs) were selected to represent effects of the project as seen from public areas that permit a high degree of visibility of the project area (Figure 3.8-1). KOPs are critical viewpoints of typical landscapes in the project area that were selected to represent the views of disturbances throughout the life of the wind facility, and would be encountered by the greatest number of people.

KOP 1 is located on U.S. Route 6/50 just west of Sacramento Pass. From this location, the view is to the southwest and looks out over the wide open valley floor. Low shrubs and grasses cover the valley floor, interspersed with patches of darker green juniper. The rugged horizon line of the Schell Creek Range occurs in the middle ground and background. This location represents the views of people traveling south and west on U.S. Route 6/50 through Spring Valley. The nearest proposed WTG is located approximately 4.6 miles from the KOP.

KOP 2 is located on U.S. Route 6/50 south of KOP 1. From this location, the view of the project area is to the northwest and looks up the valley floor and the higher peaks of the Schell Creek range. Low shrubs and grasses cover the valley floor. Although the darker green swamp cedars are visible, they occur outside the primary view of the project area. The rugged horizon line of the Schell Creek Range occurs in the background. This location represents the views of people traveling north and east on U.S. Route 6/50 through Spring Valley. The nearest proposed WTG is located approximately 1.3 miles from the KOP.

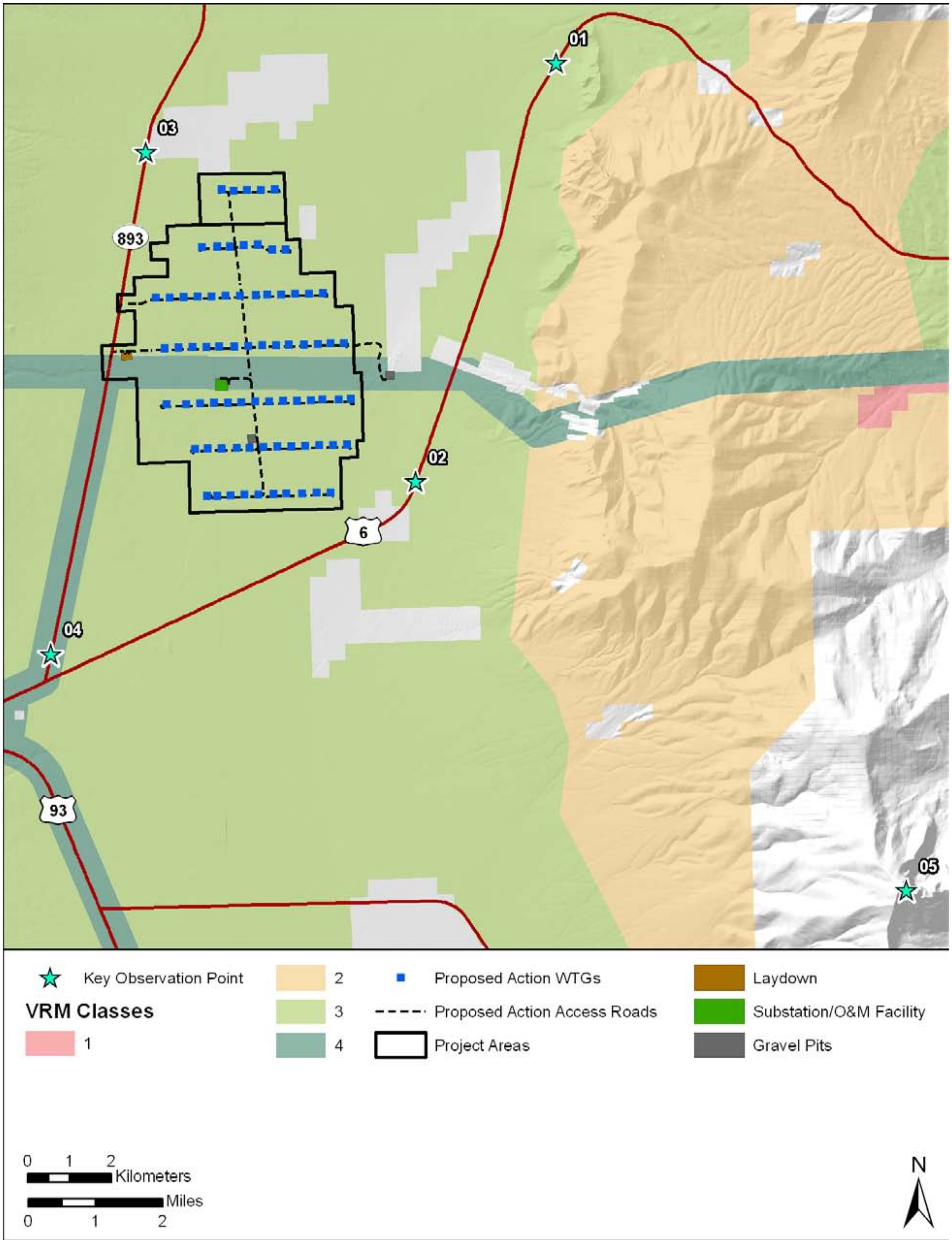

Figure 3.8-1. Key Observation Points.

KOP 3 is located on SR 893, just south of the Bastian Creek Ranch property. From this location, the view is to the southeast and looks out over the wide open valley floor. Low shrubs and grasses cover the valley floor, interspersed with patches of darker green juniper. The rugged horizon line of the Snake Range occurs in the background. This location represents the views from the ranch and of people traveling south on SR 893. The nearest proposed WTG is located approximately 1 mile from the KOP.

KOP 4 is located on SR 893, just south of KOP 3. From this location, the view is to the east and northeast and looks out over the wide open valley floor. Low shrubs and grasses cover the valley floor interspersed with patches of darker green juniper. The rugged horizon line of the Snake Range occurs in the background. This location represents the views of people traveling north on SR 893 and would consist of local residents, hunters, and visitors to Cleve Creek. The nearest proposed WTG is located approximately 3.2 miles from the KOP.

KOP 5 is located approximately 11 miles southeast of the project area at the top of Wheeler Peak in GBNP. GBNP was created by the Great Basin National Park Act of 1986 “in order to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values, there is hereby established the Great Basin National Park.” In addition to the outstanding scenery within the GBNP, the views of surrounding lands from GBNP contribute to the park visitors overall sense and understanding of the Great Basin. This KOP represents the views of visitors to the park, primarily those visitors climbing Wheeler Peak. The viewshed of GBNP is a vast area of largely undeveloped lands, almost 200,000 square miles of the Great Basin. Lands surrounding the GBNP are valleys and mountain ranges, including the Mount Moriah Wilderness to the north and the High Schells Wilderness to the west. The rugged horizon lines of those surrounding mountain ranges extend for miles to the north and south. The expansive valley floors are covered in tan, green, and gray grass and shrub lands, interspersed with darker green juniper trees. They are also crisscrossed with lighter toned dirt and paved roads and transmission lines. Visitors to the summit have clear panoramic views of the entire area.

In addition to the five KOPs identified that provide representative views of the SVWEF, other potential viewpoints include the Mount Moriah and High Schells Wilderness Areas managed by the U.S. Forest Service. Although there are areas within both Wilderness Boundaries from which the SVWEF is visible, no KOPs were identified because those areas do not include any trails, routes, or viewpoints. As a result of the intervening topography, neither the Proposed Action nor the Alternate Development Alternative are visible from the summit of Mount Moriah or the North and South Schell Peaks (Figures 3.8-2 and 3.8-3, respectively). Furthermore, PL 109-432, White Pine County Conservation and Recreation Act 2006, Section 325 Adjacent Management (b) states, “Non-wilderness Activities-The Fact that non-wilderness activities or uses can be seen or heard from areas within a wilderness designated under this subtitle shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area.”

3.8.2 Nighttime Lighting and Extent of Skyglow

A “natural lightscape” is defined by the National Park Service (NPS) Air Resources Division as “a place or environment characterized by the natural rhythm of sun and moon cycles, clean air, and of dark nights that are unperturbed by artificial lights” (NPS 2007). Dark night skies are a part of the experience and expectation of visitors seeking recreation opportunities at GBNP. GBNP emphasizes the preservation of dark skies and astronomy through its interpretive program and by hosting astronomy educational programs throughout the year.

The area of analysis for nighttime lighting includes surrounding lands that could be affected by changes in artificial lighting occurring from the Proposed Action and alternatives. Because lighting can disperse through the atmosphere and may extend further than 12 miles, the analysis area is larger than that for visual resources and includes GBNP in its entirety.

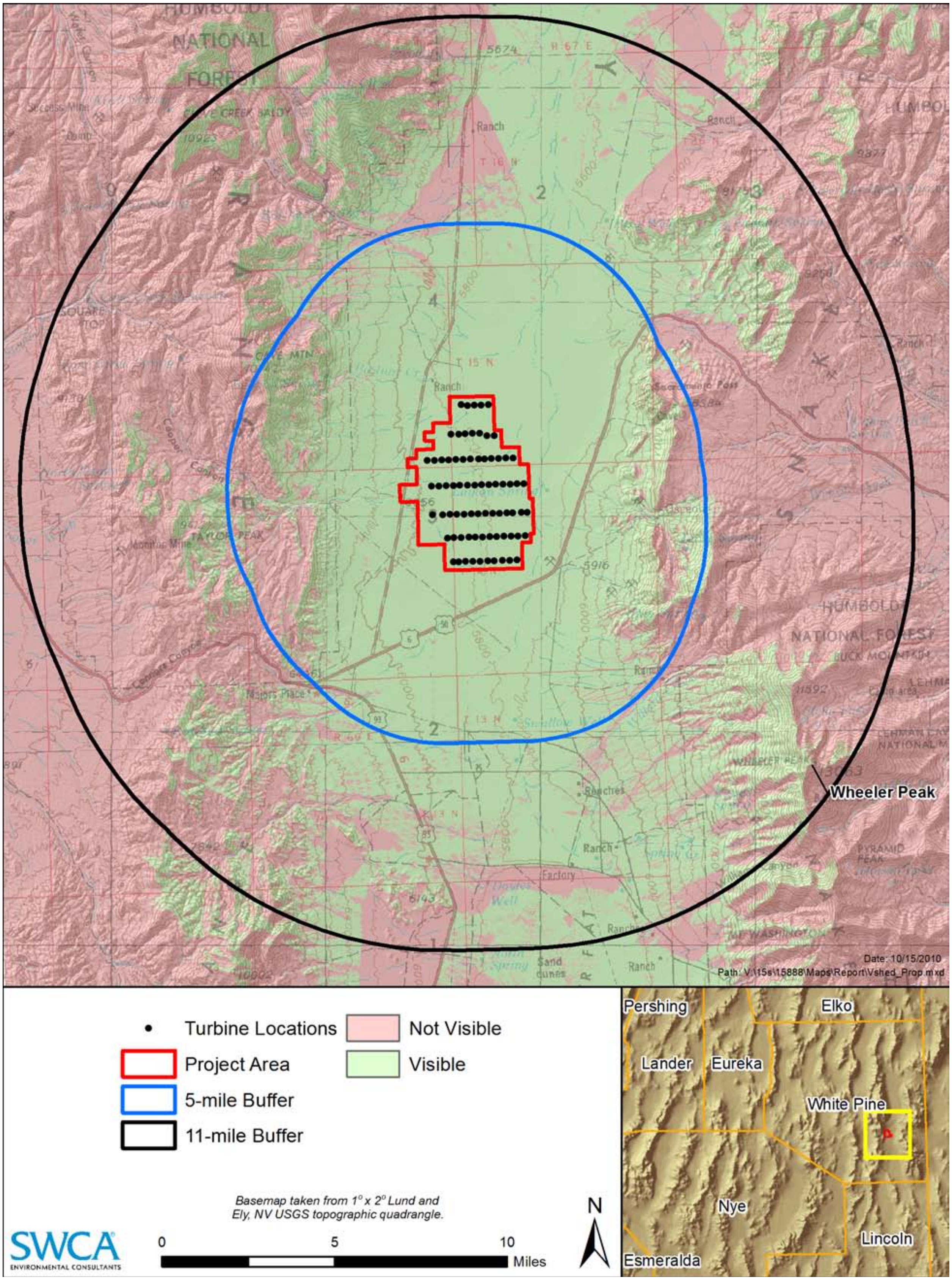

Figure 3.8-2. Viewshed delineation for the Proposed Action.

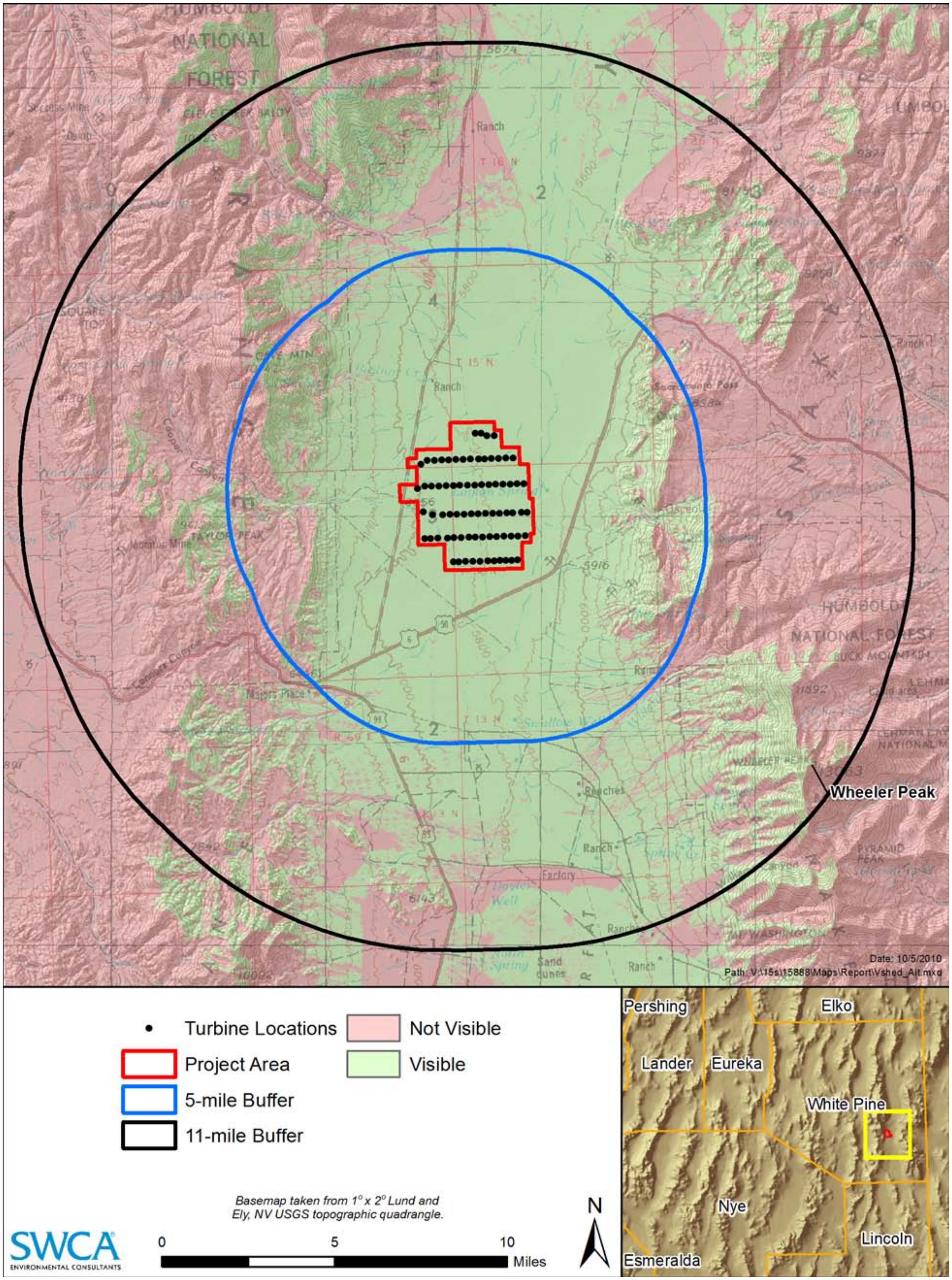

Figure 3.8-3. Viewshed delineation for the Alternative Development Alternative.

Light pollution is defined as the illumination of the night sky caused by artificial light sources (Bortle 2001). Effects of light pollution consist of a decrease in the visibility of stars and other natural night sky features, as well as disruption in natural lightscapes. Light pollution is caused by artificial light sources that are directed upward or sideways. Light then scatters throughout the atmosphere, resulting in skyglow. Other factors that influence skyglow consist of humidity, snow cover, cloud cover, and increased particulate matter in the air. Another form of light pollution is the glare that results from direct lighting. Amateur astronomers are able to qualitatively rank the brightness of the night sky using the Bortle Dark-Sky Scale, a numeric nine-level measure of the night sky brightness at a specific location (Bortle 2001). Under optimal conditions, the project area is assumed to have a Bortle Dark-Sky rating Class 3, equaling that of a typical, rural sky. A Class 3 rating is defined as, some light pollution evident at the horizon; clouds illuminated near horizon, dark overhead; Milky Way still appears complex; M15, M4, M5, M22 distinct naked-eye objects; M33 easily visible with averted vision; zodiacal light striking in spring and autumn, color still visible; nearer surroundings vaguely visible (Bortle 2001). Existing or potential sources of artificial nighttime light in the area include the Bastian Creek Ranch, Majors Junction, Cleve Creek campground, and widely spaced residences of Sacramento Pass and throughout Spring Valley. Ely is the largest source of nighttime light and skyglow in the region and is approximately 20 miles from the project area on the west side of the Schell Creek Range. Other sources of artificial light associated with the town of Baker are approximately 15 miles east of the project area. Because there are so few sources of light pollution, the night skies in the area of analysis and GBNP are some of the darkest skies in the continental United States.

3.9 Noise

The soundscape of an area is made up of both natural and human-created sounds. Sound occurs as a result of vibrations radiating through air, water, or solid objects. This section presents an evaluation of existing ambient noise levels associated with the project area. The area of analysis for noise is largely undeveloped lands managed by the BLM and GBNP. Spring Valley is sparsely populated, with approximately one to two dozen widely separated ranches, residences, and private parcels scattered throughout. The Bastian Creek Ranch is the closest known ranch property to the project area. Additionally, there are private lands within 2 miles of the project area to the south and east. Majors Place, a small business at the junction of U.S. Route 6/50 and 93 is approximately 5 miles southwest of the project area. Cleve Creek, a BLM campground, is 2 miles northwest of the project area. GBNP is approximately 5 miles southeast of the project area.

3.9.1 Fundamentals of Acoustics

Acoustics is the study of sound, and noise is defined as unwanted sound. To assess sound levels and noise impacts, several descriptors and metrics are used by the acoustical industry. Noise is usually defined as unwanted sound because it interferes with speech communication and hearing, or is otherwise annoying. Under certain conditions, noise may cause hearing loss, interfere with human activities at home and work, and in various ways affect people’s health and well-being. Noise is measured on a logarithmic scale, expressed in decibels (dB), which is the accepted standard unit for measuring sound pressure amplitude using a manageable range of numbers.

When describing sound and its effect on a human population, A-weighted sound levels (dBA) are typically used to account for or approximate the response of the human ear. The term A-weighted refers to a filtering of the noise signal in a manner that corresponds to the way the human ear perceives sound. The dBA has been found to correlate well with people’s judgments of the “noisiness” of different sounds and has been used for many years as a measure of community and industrial noise (Harris 1991).

Given the wide variation in individual thresholds of annoyance, habituation to noise, and situational reactions to noisy environments, there is no common standard for assessing the subjective effects of noise or to measure the corresponding reactions of annoyance and dissatisfaction. Thus, an important way of determining a person's subjective reaction to a new noise is by comparing it with the existing or ambient environment that is familiar to that person. From an objective, measurable viewpoint, however, there are several standardized noise-level metrics that are commonly used for qualitatively assessing a given noise environment or acoustical situation. Common descriptors of environmental noise consist of the equivalent noise level (Leq) and the day-night level (Ldn). Leq is the equivalent single value of sound that includes the same acoustic energy as the actual, varying sound levels in a given period of time (1 hour). Ldn was developed to account for increased human sensitivity to nighttime noise levels and for greater potential annoyance of noise during the nighttime hours. The actual nighttime noise levels are adjusted, based on the premise that both exterior and interior noise levels are generally lower than daytime levels and, therefore, that nighttime noise can be more noticeable than daytime conditions at the same location. Also, since most people sleep at night, there is often increased sensitivity to intrusive noises. The Ldn is the energy-average A-weighted sound level over a 24-hour period, with an added 10-dB adjustment (penalty) for sounds that occur between 10 p.m. and 7 a.m.

3.9.2 Characterization of Background Noise Levels

The PEIS states that determining existing ambiance noise levels is necessary for comparison with future noise. Because the current land uses and their average noise levels are known for Spring Valley, no site-specific noise-level data collection was required. The ambient noise levels in and around the project area are based on typical noise levels associated with the known conditions and current land uses in Spring Valley. Typical sources used for estimating existing noise conditions are based on those common noise levels presented in Table 3.9-1.

Table 3.9-1. Typical Sound Levels Measured in the Environment and Industry

Example Noise Source or Noise Environment	dBA	Subjective Impression
Shotgun (at shooter's ear) or on a carrier flight deck	140	Painfully loud
Civil defense siren (100 feet)	130	
Jet takeoff (200 feet)	120	Threshold of pain
Loud rock music	110	
Pile driver (50 feet)	100	Very loud
Ambulance siren (100 feet) or in a boiler room	90	
Pneumatic drill (50 feet) or in a noisy restaurant	80	
Busy traffic; hair dryer	70	Moderately loud
Normal conversation (5 feet) or in a data processing center	60	
Light traffic (100 feet); rainfall or in a private business office	50	
Bird calls (distant) or in an average living room or library	40	Quiet
Soft whisper (5 feet); rustling leaves or inside a quiet bedroom	30	
In a recording studio	20	
Normal breathing	10	Threshold of hearing

Source: Beranek (1998).

Typical noise sources in and around the project area include light motorized vehicle traffic, ranch machinery, distant aircraft, wildlife sounds, and wind. Because of the limited number of regular noise sources in and around the project area, the ambient noise levels are assumed to be less than 50 dBA during daytime hours and 30 dBA at during nighttime hours, or about 35 Ldn.

3.9.3 Noise Standards and Guidelines

U.S. Environmental Protection Agency. In 1974, the EPA created guidelines to assist state and local government entities in the development of state and local laws, ordinances, regulations, and standards for noise (EPA 1974). In 1974, the EPA released a document identifying a 24-hour exposure level of 70 Ldn as the level of environmental noise to prevent measurable hearing loss over a lifetime (EPA 1974). The same document identified levels of 55 dB outdoors and 45 dB indoors to prevent annoyance.

Occupational Safety and Health Administration (OSHA). On-site noise levels are regulated by the Occupational Safety and Health Act of 1970 (29 CFR 1910.95). The noise exposure level of workers is limited to 90 dBA, over a time-weighted average (TWA) 8-hour work shift to protect hearing. If there are workers exposed to a TWA 8-hr above 85 dBA (i.e., the OSHA Action Level), then the regulations call for a worker hearing protection program that includes baseline and periodic hearing testing, availability of hearing protection devices, and training in hearing damage prevention.

3.10 Transportation

Numerous roads, tracks, and paths for motorized travel occur within or near the project area. These include SR 893, a north-south-trending, two-lane highway located immediately west of the project area that crosses the project boundary at two locations along the far west end, for a combined approximate length of 0.75 mile. U.S. Route 6/50 is located approximately 0.5 mile to the south and east of the project area, provides access to GBNP, Rose Guano Cave, and Sacramento Pass, and serves as a connector route between the towns of Ely and Baker, Nevada. Additionally, approximately 20 miles of existing roads and tracks are located within the project area boundary. These consist primarily of an unpaved road network associated with an existing transmission line and various unimproved roads and tracks used for ranching and dispersed recreation activities. Average annual daily traffic (AADT) volume within the project vicinity is low (NDOT 2009). An AADT of 40 vehicles was measured along SR 893, 0.2 mile north of U.S. Route 6/50.

3.11 Land Use and Special Designations

3.11.1 Lands and Realty

The entire project area, 8,565 acres, is located on public land administered by the BLM Schell Field Office. The Schell Field Office manages public land in east-central Nevada for multiple use and provides opportunities for utility ROWs, mining, wildlife habitat, grazing, and recreation in addition to other resource values and activities. The primary legal basis for granting a ROW on BLM land is Title V—Rights-of-Way, Section 501 of the Federal Land Policy and Management Act of 1976. FLPMA provides the BLM with authority to grant, issue, or renew ROWs over, upon, under, or through such lands for systems for generation, transmission, and distribution of electric energy, except that the applicant shall also comply with all applicable requirements of the Federal Power Commission under the Federal Power Act of 1935 (49 Stat. 847; 16 USC 791).The regulations establishing procedures for the processing of these leases and permits are found in 43 CFR 2800. In addition, the Ely RMP provides guidance for management of public lands in the Ely District and Schell Field Office. The RMP provides for opportunities for multiple land uses in the project area.

The analysis area for lands and realty consists of the project area and a 2-mile buffer surrounding the project area. The 2-mile buffer ensures that access roads, ROWs, pending ROWs, dispersed land uses, and private lands that would be potentially affected by the construction and operation of the wind energy facility are taken into consideration. The analysis area is primarily undeveloped land and can be characterized as open rangeland interspersed with utilities, roads, communication lines, agricultural uses, and widely dispersed residential uses on private parcels. Private lands are described in Section 3.13 Socioeconomics.

Land use demands in the analysis area are mainly for utility ROWs, roads, communication ROWs, groundwater development, grazing, and dispersed recreation. Grazing and dispersed recreation uses are described in Sections 3.4 and 3.12, respectively. The 0.5-mile-wide BLM-designated SWIP utility corridor crosses the project area from east to west and contains several existing transmission facilities. Existing ROWs on BLM land in the area of analysis are listed in Table 3.11-1. Presently, the existing ROWs identified within the project area and surrounding analysis area include fiber-optic lines, transmission lines and facilities within the SWIP utility corridor, roads, and SNWA piezometers. Pending ROWs include the SNWA proposed water pipeline and associated groundwater development facilities. In addition, there are other proposed wind energy study areas in Spring Valley north of the SVWEF project area.

Table 3.11-1. Bureau of Land Management Rights-of-Way in the Analysis Area

Serial Number	Description	Location
NVN - 066394	AT&T fiber-optic facilities	Linear ROW that traverses the project area from east to west
NVN - 005685	Mt. Wheeler power transmission line	Linear ROW that traverses the project area from east to west
NVN – 0012310	NDOT road in Spring Valley	Linear ROW that traverses the western edge of the project area, generally from north to south
NVN – 046822	SBC/Nevada Bell buried communication line	Linear ROW that traverses the western edge of the project area, generally from north to south
NVN - 076179	NV Energy fiber-optic line	Linear ROW that traverses the project area from east to west
NVN – 005253	NV Energy transmission line	Linear ROW that traverses the project area from east to west
N - 84216	SNWA piezometers	Two locations: one within the northern block of the project area and one east of the project area
Pending	SNWA Ground Water Development Project	ROW that traverses the western edge of the project area, generally from north to south

Source: BLM (2009).

3.11.2 Special Designations

Special designations in the vicinity of the project area include ACECs. An ACEC is a designation given to BLM lands that meet special relevance and importance criteria set forth by the BLM. The area must have special relevance to natural, cultural, or historic resources and importance such that special management is required to protect the value of these resources. The size of the ACEC should be as large as is necessary to protect these resources (BLM 1988).

The ACECs in proximity to the project area consist of the Rose Guano Cave and Swamp Cedar ACECs. The BLM Ely RMP identifies both ACECs as ROW avoidance areas and as closed to renewable energy facilities. Because they are both identified as closed to renewable energy facilities, the SVWEF project area does not overlap either ACEC.

The 40-acre Rose Guano Cave ACEC is located approximately 4 miles northeast of the nearest proposed WTG within the project area. This ACEC has been known historically as a location that was mined for phosphate rock and bat guano (BLM 2005:Appendix Q) and in its current state provides a roosting location for a substantial number of Brazilian free-tailed bats, which use the cave as a migratory stopover (Sherwin 2009). Brazilian free-tailed bats are discussed in Section 3.3.6.

The Swamp Cedar ACEC is adjacent to the project area. This ACEC was designated for several reasons as it provides habitat that is essential to maintaining species diversity, supports rare and endemic plant species, and is a significant historical site, where the Goshute War occurred in 1863.

The Swamp Cedar ACEC is characterized by the presence of Rocky Mountain juniper and is the "largest of three known occurrences of valley bottom ecotype or Rocky Mountain juniper woodlands" (BLM 2005:Appendix Q). As such, this ACEC comprises the largest example of this rare plant community, which is dependent on a hydrologic regime where soil conditions and runoff create a perched water table (BLM 2005:Appendix Q).

Swamp Cedar ACEC has been the site of numerous historical uses. Shoshone families once inhabited the area, prior to their deaths at the hands of U.S. soldiers, which occurred after conflicts arose between white settlers, Bannock Shoshone, and Ute (BLM 2005:Appendix Q). While the exact location is unknown, the Goshute War of 1863 was known to take place within or in the vicinity of the Swamp Cedar ACEC (BLM 2005:Appendix Q). This short battle resulted in the deaths of 23 Goshute and injury to one soldier (BLM 2005:Appendix Q). Additionally, several prehistoric sites have been recorded in the Swamp Cedar ACEC (BLM 2005:Appendix Q).

3.12 Recreation

The BLM manages recreation on public lands by identifying SRMAs. SRMAs have a distinct recreation market and corresponding management strategy. BLM-managed public lands not delineated as SRMAs are managed as extensive recreation management areas and do not require a specific management strategy or activity-level planning. The BLM Ely District Office has identified the project area as being within the Loneliest Highway SRMA, which is managed for a wide variety of recreational uses and opportunities to ensure a balance of recreation experiences (BLM 2008b). The Loneliest Highway SRMA extends north of U.S. Route 6/50 to the Elko County Line and encompasses 675,123 total acres. Although a site-specific recreation area management plan for the Loneliest Highway SRMA has not been prepared, several developed recreation sites and a variety of dispersed recreation opportunities, including motorized touring and hunting, are available. There is also an urban interface with the cities of Ely and McGill.

There are currently two BLM developed recreation sites near the project area: Cleve Creek campground and Sacramento Pass. Cleve Creek campground is located approximately 6 miles northwest of the project area on the east side of the Schell Creek Range. The campground has both individual and group camping sites. There are opportunities for hunting, fishing, horseback riding, hiking, and off-highway vehicle (OHV) riding on existing roads and trails. Sacramento Pass is located approximately 7 miles east of the project area along U.S. Route 6/50. There is a small pond stocked with fish, and there are several camping and picnic areas. There are opportunities for horseback riding, mountain biking, hiking, and wildlife observation.

Although there are no developed recreation sites within the project area, roads and trails in the project area are used for dispersed recreation on a limited basis. Dispersed recreation can occur on undeveloped BLM land that is open to the public for camping and general recreation. These areas do not include any developed amenities or recreation facilities. During field visits, SWCA observed evidence of recreation activities in the project area consisting of spent shotgun shells and multiple OHV tracks.

The project area occurs within the southeast corner of NDOW Game Management Unit 111. Game Management Unit 111 consists of 746,555 acres that stretch north to the Elko County line and includes a majority of the Schell Creek Range and Spring Valley (NDOW 2009). Within this unit, elk, mule deer, and pronghorn antelope are hunted by permit. Hunts for these game species occur from August to December; mule deer hunts occur from August to November, elk hunts occur from November to December, and pronghorn hunts occur from late August to early September. Although there are mule deer and elk harvested from Game Management Unit 111, the project area is not identified as a recommended hunting area for these species. The Nevada Hunter Information Sheets for Game Management Unit 111 reports that most mule deer are found between 7,500 and 10,500 feet amsl and that most elk are found between 6,500 and 10,000 feet amsl (NDOW 2009). The elevation throughout the project area is less than 6,000 feet. Spring Valley is recommended by NDOW as a hunting area for pronghorn antelope.

In addition to BLM developed recreation sites and dispersed recreation opportunities near the project area, the 77,180-acre GBNP is located approximately 5 miles southeast of the project area in the Snake Range. Visitors to the GBNP must travel through Spring Valley past the project area when coming from the west. Within GBNP, recreation opportunities include interpretive programs at the visitor center and throughout the park, tours of Lehman Caves, overnight camping at six established campgrounds, and more than 60 miles of trails for hiking. Other recreation opportunities include backcountry skiing, snowshoeing, biking, bird watching, caving, fishing, horseback riding, picnicking, and pine nut gathering (NPS 2007).

3.13 Socioeconomics

With a population of 9,694, the primary industries in White Pine County are government services, mining, agriculture, and tourism (U.S. Census Bureau [Census Bureau] 2000; White Pine County Tourism and Recreation Board 2008). White Pine County contains nearly 400 businesses offering a variety of products and services, including restaurants, hotels, and construction services (White Pine County Tourism and Recreation Board 2008). Mining operations are a larger source of employment in White Pine County. Private non-agricultural employment in White Pine County in 2007 was 2,784 (Census Bureau 2010). Mining represents one of the largest non-agricultural employers in White Pine County and is projected at 837 workers for 2010 (Nevada State Demographer 2008). Other employers in the County include federal and local governments, the school district, service industries, utilities, and agriculture. The median household income in the County in 2008 was $49,209. While the project area itself does not contain any residential areas, residences do occur as near as the Bastian Creek Ranch, north of the project area and at Sacramento Pass east of the project area.

White Pine County relies on revenues from a variety of taxes to fund essential services. Real property and personal property taxes levied at the county level include taxes on personal property, residential, commercial, and industrial property. In 2008, the projected White Pine County government expenditures totaled $60,698,361 (Nevada Department of Taxation 2009).

The Census Bureau has not developed projections for the cities of Ely and Baker since the 2000 census. The Nevada State Demographer recently released 2008 population estimates for Nevada's counties, cities, and towns. The information presented is the best available data on socioeconomic conditions in White Pine County. Located approximately 25 miles west of the project area and containing approximately 45% of the population of White Pine County, the town of Ely has a population of 4,352 (Census Bureau 2000).

While the Census Bureau does not provide data for the town of Baker, Nevada, which is 30 miles east of the project area, it does provide data for the zip code in which Baker is located. In the year 2000, this zip code (89311) had a population of 160 people, which is 1.7% of the population of White Pine County (Census Bureau 2000).

Several private land parcels occur north, east, and south of the project area (see Figure 2.1.1). These lands are within the 2-mile buffer of the project area. The private parcel to the north is directly adjacent to the project area and includes the Bastian Creek Ranch residence and grazing operations facilities. The private lands to the east are currently unoccupied. The private lands to the south are occupied, and the landowner has subdivided the property for additional residential development in the future (personal communication, Robert Benson, member of the public, to Wells McGiffert, BLM, January 11, 2010).

3.14 Air Quality

3.14.1 Existing Ambient Air Quality

Air quality is determined by the ambient concentrations of pollutants that are known to have detrimental effects. The EPA has classified National Ambient Air Quality Standards for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide, particulate matter with diameter of 10 microns or less (PM_{10}), particulate matter with diameter of 2.5 microns or less ($PM_{2.5}$), ozone, sulfur dioxide, and lead. Areas with air quality that do not meet the standards are designated “non-attainment areas” by the EPA. The Nevada Division of Environmental Protection enforces air quality regulations in the project area. The project area is in attainment for all criteria pollutants.

Air quality in the project area is typical of the undeveloped areas of the great basin. Although the project area is in attainment for all criteria pollutants, PM is a pollutant of concern. Existing sources of PM in Spring Valley include motorized travel across dirt surface roads and trails, wind blowing across un-vegetated areas, wild fires, road work, and construction activities.

3.14.2 Climate Change

While the scientific understanding of climate change continues to evolve, the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report stated that warming of Earth’s climate is unequivocal, and that warming is very likely attributable to increases in atmospheric greenhouse gases (GHGs) caused by human activities (anthropogenic) (IPCC 2007). The release of anthropogenic GHGs and their potential contribution to global warming are inherently cumulative phenomena. The Fourth Assessment Report indicates that changes in many physical and biological systems, such as increases in global temperatures, more frequent heat waves, rising sea levels, coastal flooding, loss of wildlife habitat, spread of infectious disease, and other potential environmental impacts are linked to changes in the climate system, and that some changes could be irreversible. GHGs, which include carbon dioxide (CO_2), methane, and nitrous oxide, are chemical compounds in the Earth’s atmosphere that trap heat. Of these gases, CO_2 is recognized by the IPCC as the primary GHG affecting climate change. Present atmospheric concentrations of CO_2 are believed to be higher than at any time in at least the last 650,000 years, primarily as a result of combustion of fossil fuels. It is also very likely that observed increases in CO_2 are partially due to fossil fuel use, according to the IPCC (2007) Fourth Assessment Report.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter presents the anticipated environmental consequences of implementation of each alternative as described in Chapter 2. For the analysis, existing data, appropriate scientific methodologies, and professional judgment were used. The analysis also takes into account the resource conservation measures identified in Chapter 2, including referenced appendices. This analysis was done using the best available information, including site-specific data collected during bird and bat studies, cultural resource inventories, and visual contrast analysis. Additional data from the PEIS and from federal and state agencies for resources in the area were used to support the analysis. Impacts that occur under more than one alternative (including the Proposed Action) are discussed under the Proposed Action and are then referenced under other alternatives.

Only those resources and resource uses that would potentially be impacted by any of the alternatives are brought forward for detailed analysis and discussed in Chapter 4. Impacts are defined as modifications to the existing environment brought about by implementing an alternative. Impacts can be beneficial or adverse, can result from the action directly or indirectly, and can be long-term, short-term, temporary, or cumulative in nature. Direct impacts are attributable to implementation of an alternative that affects a specific resource and generally occur at the same time and place. Indirect impacts can result from one resource affecting another (e.g., soil erosion and sedimentation affecting water quality) or can occur later in time or removed in location but can be reasonably expected to occur. Long-term impacts are those that would substantially remain for many years or for the life of the project. Short-term impacts result in changes to the environment that are stabilized or mitigated rapidly and without long-term effects.

The analysis in this chapter provides a quantitative or qualitative comparison (depending on available data and the nature of the impact) of alternative impacts and establishes the severity of those impacts in the context of the existing environment.

4.2 Wildlife

This section discusses impacts to wildlife from the construction and operation of the SVWEF. Both indirect and direct impacts are analyzed for wildlife and their habitats. The impacts analysis for wildlife is an assessment of the increased risk of mortality and changes to wildlife habitat that would result from the construction and operation of the wind energy facility under the Proposed Action and alternatives. As discussed above, wildlife resources consist of reptiles and amphibians, small mammals, big game, birds (waterfowl and shorebirds, song birds, birds of prey and vultures), and bats. Impacts to special-status species are described in Section 4.3. Because mortality and changes to wildlife habitat would be the primary direct impacts of the wind energy facility on wildlife resources, the relative impacts to wildlife were assessed by comparing the changes that would result from the construction and operation of the wind facility under the alternatives. Wherever possible, impacts are discussed in quantifiable terms.

The impacts analysis of wildlife resources takes into account the implementation of the design features described in Section 2.1.4. Additionally, the impacts analysis of wildlife resources takes into account the implementation of measures and actions described in the Restoration and Weed Management Plan (see Appendix A), ABPP (see Appendix F), and SWPPP and SPP (see Appendix D).

4.2.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to wildlife from a typical wind energy facility are described in Section 5.9.2.2 and 5.9.3.2 of the PEIS and are consistent with this project. Because this EA tiers to the PEIS, a brief summary of those impacts to wildlife that are relevant to the Proposed Action is presented below. A summary of the related mitigation measures for wildlife that have been fully analyzed in the PEIS is provide in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.2.1.1 CONSTRUCTION

Potential impacts to wildlife from a typical wind energy facility are described in Section 5.9.2.2 of the PEIS. The impacts to wildlife associated with construction of wind energy facilities would occur from 1) habitat reduction, alteration, or fragmentation; 2) introduction of invasive vegetation; 3) injury or mortality of wildlife; 4) decrease in water quality from erosion and runoff; 5) fugitive dust; 6) noise; 7) exposure to contaminants; and 8) interference with behavioral activities. Table 4.2-1 provides a summary of the potential construction impacts to wildlife and describes which species they would affect and to what extent and duration.

Table 4.2-1. Potential Wind Energy Construction Effects on Wildlife

Wildlife Stressor	Associated Project Activity or Feature	Potential Effect and Likely Wildlife Affected	Effect Extent and Duration
Habitat Disturbance – Section 5.9.2.2.1	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Reduction or alterative on on-site habitat; all wildlife.	Long-term habitat reduction within tower, building, and access road footprints; long-term reduction in habitat quality in other site areas (utility and transmission corridors).
Invasive vegetation – Section 5.9.2.2.2	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Reduced habitat quality; all wildlife.	Long term if established in areas where turbines, support facilities, and access roads are situated.
Direct injury or mortality – Section 5.9.2.2.3	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Destruction and injury of wildlife with limited mobility; amphibians, reptiles, birds, and mammals.	Permanent within construction footprints of turbines, support facilities, and access roads; short term in areas adjacent to construction area.
Erosion and runoff – Section 5.9.2.2.4	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Reduced reproductive success of amphibians using on-site surface waters; drinking water supplies may be affected.	Short term; may extend beyond site boundaries.
Fugitive dust generation – Section 5.9.2.2.5	Site clearing and grading; turbine and tower construction; access road and utility corridor construction.	Respiratory impairment; all wildlife.	Short term.
Noise – Section 5.9.2.2.6	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Disturbance of foraging and reproductive behaviors; habitat avoidance; birds and mammals.	Short term.
Exposure to contaminants – Section 5.9.2.2.7	Accidental spill during equipment refueling; accidental release of stored fuel or hazardous materials.	Exposure may affect survival, reproduction, development, or growth; all wildlife.	Short term and localized to spill area.

Table 4.2-1. Potential Wind Energy Construction Effects on Wildlife (Continued)

Wildlife Stressor	Associated Project Activity or Feature	Potential Effect and Likely Wildlife Affected	Effect Extent and Duration
Interference with behavioral activities – Section 5.9.2.2.8	Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel. Site clearing and grading; turbine and tower construction; access road and utility corridor construction; construction equipment travel.	Disturbance of migratory movements; avoidance of construction areas by migrating birds and mammals. Disturbance of foraging and reproductive behaviors; birds and mammals.	Short term. Short term for some species, long term for other species that may completely abandon the disturbed habitats and adjacent areas.

Source: BLM (2005).

4.2.1.2 OPERATIONS AND MAINTENANCE

Potential impacts to wildlife from the operation and maintenance of a typical wind energy facility are described in Section 5.9.3.2, Operational Effects on Wildlife, of the PEIS. The impacts to wildlife associated with the operation and maintenance of wind energy facilities would occur from 1) electrocution from transmission lines; 2) noise; 3) the presence of, or collision with, turbines, MET towers, and transmission lines; 4) predation; 5) mowing; 6) exposure to contaminants; 7) disturbance associated with activities of the wind energy project workforce; 8) decreased aquatic habitat quality; and 9) interference with behavioral activities. Table 4.2-2 provides a summary of the potential operational impacts to wildlife and describes which species they would affect, to what extent, and with what duration.

Table 4.2-2. Potential Wind Energy Operations and Maintenance Effects on Wildlife

Wildlife Stressor	Activity	Potential Effect and Likely Wildlife Affected	Effect Extent and Duration
Electrocutions – Section 5.9.3.2.1	Electric transmission lines and electrical utility lines.	Mortality of birds.	On-site, low magnitude, but long term.
Noise – Section 5.9.3.2.2	Turbine operation, support machinery, motorized vehicles, and mowing equipment.	Disturbance of foraging and reproductive behaviors of birds and mammals; habitat avoidance.	Short and long term; greatest effect in highest noise areas.
Collision with turbines, towers, and transmission lines – Section 5.9.3.2.3	Presence and operation of turbines; presence of transmission and MET towers and transmission lines.	Injury or mortality of birds and bats.	On-site, low magnitude but long term for many species; population effects possible for other species.
Predation	Transmission and MET towers.	Increase in avian predators due to more perch sites for foraging; may decrease local prey populations.	Long term; may be of high magnitude for some prey species.
Mowing – Section 5.9.3.2.4	Mowing at support building and turbine locations.	Injury and/or mortality of less mobile wildlife; reptiles, small mammals, ground-nesting birds.	Short term.
Exposure to Contaminants – Section 5.9.3.2.5	Accidental spill or release of pesticides, fuel, or hazardous materials.	Exposure may affect survival, reproduction, development, or growth; all wildlife.	Short or long term, localized to spill locations.
Workforce presence – Section 5.9.3.2.6	Daily human and vehicle activities.	Disturbance of nearby wildlife and bird and mammal behavior; habitat avoidance.	Short or long term, localized and of low magnitude.

Table 4.2-2. Potential Wind Energy Operations and Maintenance Effects on Wildlife (Continued)

Wildlife Stressor	Activity	Potential Effect and Likely Wildlife Affected	Effect Extent and Duration
Decreased aquatic habitat quality – Section 5.9.3.3	Erosion and runoff from poorly stabilized surface soils.	Reduced reproductive success of amphibians; wildlife drinking water supplies may be affected.	Short or long term, localized.
Interference with behavioral activities – Section 5.9.3.2.7	Presence of wind facility and support structures	Migratory mammals may avoid previously used migration routes, potentially affecting condition and survival. Species may avoid areas surrounding the wind energy facility, including foraging and nesting habitats.	Long term, localized to populations directly affected by the presence of the facility. Long term for species that completely abandon adjacent areas; population-level effects possible for some species.

Source: BLM (2005).

4.2.2 Proposed Action

Project-specific impacts to wildlife from the construction and operations associated with the Proposed Action are described below based on the PEIS effects analysis. The effects of fugitive dust and exposure to contaminants on wildlife and wildlife habitat that are discussed in Sections 5.9.2.2.5 and 5.9.2.2.7 of the PEIS sufficiently describe project-specific impacts for all wildlife, and no further analysis is included in this EA.

4.2.2.1 REPTILES AND AMPHIBIANS

4.2.2.1.1 Construction

Habitat disturbance. Construction activities would result in the short-term disturbance of 336.9 acres of habitat for the Great Basin spadefoot toad (*Spea intermontana*) and the reptile species identified in Section 3.2.1; this represents 3.9% of total habitat within the project area. Although construction activities are expected to last 9 to 12 months, it could take up to 10 years before temporary disturbance areas are successfully reclaimed. Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community, which could have a diminished quality of habitat for those species.

Construction activities would result in the long-term removal of 111.1 acres of habitat, or 1.3% of the project area, necessary for the wind turbine pads, O&M building, access road footprints, and associated infrastructure. This habitat disturbance would occur for the duration of the 30-year SVWEF and the subsequent 10 years anticipated for successful decommissioning and reclamation.

Invasive vegetation. The Proposed Action would result in reduced habitat quality from the spread of existing invasive vegetation and the introduction of new species of invasive vegetation. Invasive vegetation degrade wildlife habitat in several ways. Weeds outcompete most native plants and can lead to a homogeneous vegetative landscape. Weedy habitats often contain fewer highly nutritious forage species for grazers and herbivores. A heavy weed invasion would either displace wildlife from this habitat or lead to reduced health for individuals. Furthermore, some invasive species, such as cheat grass, are fire dependent and create an environment that is prone to frequent wildfires. The potential for invasive vegetation that is currently occurring in Spring Valley to spread, and for new invasive species to be introduced, would be highest along the linear features of Proposed Action—the roads and collection system.

Measures for reducing the spread and establishment of noxious and invasive weeds are included in the Restoration and Weed Management Plan in Appendix A. Implementation of measures identified in the plan would reduce the risk of spreading invasive vegetation currently occurring in Spring Valley, as well as reducing the risk of introducing new invasive species from locations with known invasive vegetation problems.

Direct injury or mortality. Reptile and amphibian species in the project area have limited mobility and would not be able to easily avoid construction vehicles and equipment. Injury and mortality of individual animals would occur as a result of site clearing, grading, and excavation as well as vehicle movement throughout the project area. The risk of injury or mortality from clearing, grading, and excavation activities would last for the 9- to 12-month construction period. The risk from increased vehicle movement in the project area would remain throughout the 30-year life of the SVWEF. Wetland areas would be avoided as part of the Proposed Action, reducing the risk of injury and mortality to amphibians, including the Great Basin spadefoot toad, which uses these areas during breeding.

Erosion and runoff. Changes in surface water quality would result in reduced reproductive success of amphibians using on-site surface waters. Increased erosion and runoff as a result of the Proposed Action would change surface water quality during the 9- to 12-month construction period. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting surface water quality is minimal.

A SWPPP and SPP have been prepared for the SVWEF (see Appendix D). The plans would further reduce the risk of changes to surface water quality by establishing the practices that would be implemented to control erosion and the release of pollutants in stormwater runoff. In addition, wetlands in the project area would be avoided as part of the Proposed Action, further reducing the risk of changes to the water quality in habitat for amphibians, including the Great Basin spadefoot toad, which uses these areas during breeding.

Noise. Increased noise associated with construction activities would reduce the quality of reptile and amphibian habitat intermittently throughout the 9- to 12-month construction phase. Noise levels for typical equipment that would be used during the construction phase range between 80 to 90 dBA at a distance of 50 feet. The intensity of construction activity would vary over the course of the 9- to 12-month construction phase as equipment is moved throughout the area to complete the different facilities, infrastructure, and WTGs. Increased noise from construction would lead to habitat avoidance and would disrupt the foraging and reproductive behavior of reptiles and amphibians for the duration of the construction phase.

Interference with behavioral activities. Reptile and amphibian species in the project area have limited mobility and would not be able to easily avoid construction vehicles and equipment. Additionally, disturbances to behavioral activities, including foraging, mating, and nesting, would result from construction activities during the 9- to 12-month construction period. Reptiles and amphibians may avoid foraging or breeding behavior or vacate sites entirely in areas where construction is occurring. Reptiles and amphibians are expected to return to the project area once construction activities are complete.

4.2.2.1.2 Operation and Maintenance

Predation. The addition of a 400-foot-long overhead 230-kV connector transmission line would result in additional perch sites on new transmission line poles for avian predators in the project area. The 230-kV aboveground line connecting the Spring Valley substation and the Osceola switching station to the NV Energy 230-kV transmission line is the only aboveground transmission line. Because NV Energy 230-kV line currently has numerous transmission line poles, perch sites are not a limiting factor in the area;

therefore, there would be a negligible increase in predation of reptiles and amphibians along the new line throughout the 30-year duration of the SVWEF.

Workforce presence. Reptile and amphibian species in the project area have limited mobility and would not be able to easily avoid operations and maintenance vehicle movement throughout the project area. Increased risk of injury and mortality of individual animals would occur as a result of the maintenance and operations activities of the project workforce throughout the 30-year duration of the SVWEF.

Decreased aquatic habitat quality. Increased erosion and runoff would result from the increase in impermeable surfaces in the project area, 111.1 acres. Erosion and runoff would result in reduced aquatic habitat quality. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting aquatic habitat is minimal. The SWPPP and SPP (see Appendix D) describe the final stabilization/termination design to minimize erosion and prevent stormwater impacts after construction is complete. Additionally, wetland areas would be avoided as part of the Proposed Action, reducing the risk to aquatic habitat.

4.2.2.2 SMALL MAMMALS

4.2.2.2.1 Construction

Habitat disturbance. Construction activities would result in the short-term disturbance of 336.9 acres of small mammal habitat, which represents 3.9% of total habitat within the project area. As described in Appendix A, a Restoration and Weed Management Plan would be completed and would include post-construction reclamation of short-term disturbance areas for small-mammal habitat. It could take up to 10 years before short-term disturbance areas are successfully reclaimed. Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community, which could have a diminished quality of habitat for those species.

Construction activities would result in the long-term removal of 111.1 acres of habitat, or 1.3% of the project area necessary for the wind turbine pads, O&M building, access road footprints, and associated infrastructure. This habitat disturbance would occur for the duration of the 30-year SVWEF and the subsequent 10 years for successful decommissioning and reclamation.

Invasive vegetation. The Proposed Action would result in reduced habitat quality from the spread of existing invasive vegetation and the introduction of new species of invasive vegetation. Invasive vegetation degrade wildlife habitat in several ways. Weeds outcompete most native plants and can lead to a homogeneous vegetative landscape. Weedy habitats often contain fewer highly nutritious forage species for grazers and herbivores. A heavy weed invasion would either displace wildlife from this habitat or lead to reduced health for individuals. Furthermore, some invasive species, such as cheat grass, are fire dependent and create an environment that is prone to frequent wildfires. The potential for invasive vegetation that is currently occurring in Spring Valley to spread and for new invasive species to be introduced would be highest along the linear features of Proposed Action—the roads and collection system.

Measures for reducing the spread and establishment of noxious and invasive weeds are included in the Restoration and Weed Management Plan in Appendix A. Implementation of measures identified in the plan would reduce the risk of spreading invasive vegetation currently occurring in Spring Valley, as well as reducing the risk of new invasive species from arriving from locations with known invasive vegetation problems.

Direct injury or mortality. Small-mammal species in the project area have limited mobility and would not be able to easily avoid construction vehicles and equipment. Injury and mortality of individual small mammals would occur as a result of site clearing, grading, and excavation as well as vehicle movement throughout the project area. The risk of injury or mortality from clearing, grading, and excavation activities would last for the 9- to 12-month construction period. The risk from increased vehicle movements through the project area would remain throughout the 30-year life of the SVWEF.

Erosion and runoff. Drinking water supplies would be impacted as a result of changes in surface water quality in the project area. Increased erosion and runoff as a result of the Proposed Action would change surface water quality during the 9- to 12-month construction period. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting drinking water supplies for small mammals is minimal.

Noise. Increased noise associated with construction activities would reduce the quality of small-mammal habitat intermittently throughout the 9- to 12-month construction phase. Noise levels for typical equipment that would be used during the construction phase range between 80 to 90 dBA at a distance of 50 feet. The intensity of construction activity would vary over the course of the 9- to 12-month construction phase as equipment is moved throughout the area to complete the different facilities, infrastructure, and WTGs. Increased noise from construction would lead to habitat avoidance and would disrupt the foraging and reproductive behavior of small mammals for the duration of the construction phase.

Interference with behavioral activities. Small-mammal species in the project area have limited mobility and would not be able to easily avoid construction vehicles and equipment. Additionally, disturbances to behavioral activities, including foraging, mating, and nesting, would result from construction activities during the 9- to 12-month construction period. Small mammals may avoid foraging, breeding behavior, or vacate sites entirely in areas where construction is occurring. Small mammals are expected to return to the project area once construction activities are complete.

4.2.2.2.2 Operation and Maintenance

Noise. The highest noise levels would occur in areas adjacent to the WTGs. Noise levels of 55 dBA, consistent with the current ambient noise level in the area, are projected by the turbine manufacturer to occur at 400 feet from the WTGs. Within the 400-foot area surrounding WTGs, the increased noise from the operation of WTGs may lead to reduced habitat use and disruption of foraging and reproductive behavior of small mammals.

Predation. The addition of a 400-foot-long overhead 230-kV connector transmission line would result in additional perch sites on new transmission line poles for avian predators in the project area. The 230-kV aboveground line connecting the Spring Valley substation and the Osceola switching station to NV Energy 230-kV transmission line is the only aboveground transmission line. Additionally, some species of small mammals such as ground squirrels and cottontails are attracted to the disturbed habitat common on the edge of project developments. Because the NV Energy 230-kV line currently has numerous transmission line poles, perch sites are not a limiting factor in the area; therefore, there would be a negligible increase in predation of small mammals along the new line throughout the 30-year duration of the SVWEF.

Workforce presence. Small-mammal species in the project area have limited mobility and would not be able to easily avoid operations and maintenance staff and vehicle movement throughout the project area. Regular vehicle traffic on access roads in the project area would occur throughout the year over the 30-year duration of the SVWEF. Increased risk of injury and mortality of individual small mammals would occur as a result of the maintenance and operations activities of the project workforce.

4.2.2.3 BIG-GAME SPECIES

4.2.2.3.1 Construction

Habitat disturbance. Elk, mule deer, and mountain lion are known to use the project area to a minimal degree. Pronghorn regularly use the valley floor in Spring Valley and would be displaced from the project area for approximately 9 to 12 months during construction. All 8,565 acres should be considered an effective loss of habitat during construction, which equates to a 1.5% loss of available habitat in the Spring Valley watershed, but no loss of crucial wintering habitat. Permanent removal of 111.1 acres of habitat would constitute only 1.3% of the available habitat in Spring Valley. The Restoration and Weed Management Plan (see Appendix A) includes post-construction reclamation of short-term disturbance areas for big-game habitat, which could have a diminished quality of habitat for those species.

Invasive vegetation. Impacts from the spread of invasive vegetation on big-game habitat would be the same as those described for small mammals.

Direct injury or mortality. Big-game species in the project area are highly mobile and would be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the 9- to 12-month construction period. Construction site speed limits of 25 mph would further reduce the risk of direct injury or mortality to big-game species.

Erosion and runoff. Drinking water supplies would be impacted as a result of changes in surface water quality in the project area. Increased erosion and runoff as a result of the Proposed Action would change surface water quality during the 9- to 12-month construction period. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting drinking water supplies for big-game species is minimal.

Noise. Increased noise associated with construction activities would reduce the quality of wildlife habitat intermittently throughout the 9- to 12-month construction phase. Because big-game species in the project area are highly mobile, increased noise associated with construction of the Proposed Action would result in habitat avoidance for the duration of the construction phase. Big-game species are expected to return to portions of the project area as construction activities rotate throughout the project area.

Interference with behavioral activities. Because big-game species in the project area are highly mobile, increased activity associated with construction of the Proposed Action would result in habitat avoidance for the duration of the construction phase as described under habitat disturbance. Big-game species habitat is common and occurs throughout the Spring Valley watershed. In addition, big-game species are expected to return to portions of the project area over the course of the construction phase as activities rotate throughout the project area.

4.2.2.3.2 Operation and Maintenance

Noise. The highest noise levels would occur in areas adjacent to the WTGs. Noise levels of 55 dBA, consistent with the current ambient noise level in the area, are projected by the turbine manufacturer to occur at 400 feet from the WTGs. Within the 400-foot area, the increased noise from the operation of WTGs may lead to short-term intermittent disruptions in the foraging behavior of big-game species when wind levels and associated noise are highest.

Workforce presence. Because of the low amounts of human activity throughout the project area during the long-term operation, big-game species are expected to return to the habitat within and adjacent to the project area following construction.

Interference with behavioral activities. Changes in behavioral activities of big-game species would be consistent with those impacts described under Noise and Workforce presence above. Additionally, Johnson et al. (2000) found that pronghorn numbers at the Foote Creek Rim project in Wyoming did not decrease following construction of that facility. Walter et al. (2006) conducted a radio-telemetry and fecal sampling study on elk at a wind power development in southwestern Oklahoma and found that elk were not adversely affected by wind power operations. They found that elk did not leave the study area, regularly crossed facility roads, and appeared not to be alarmed or stressed when directly observed. They also determined through fecal sampling that nutritional intake was not affected. This suggests that big-game behavior would be minimally affected by the routine operations following construction.

The new 3.6-mile-long Bastian Creek Allotment fence and 5.6-mile-long Majors Allotment fence would be constructed to meet specifications for cattle and wildlife (BLM Manual 1737). The additional fence line may impede the movements of big-game species, although it would be designed and constructed to allow the passage of mule deer, elk, and pronghorn.

4.2.2.4 WATERFOWL AND SHOREBIRDS

4.2.2.4.1 Construction

Habitat disturbance. Construction activities would not result in the removal of wetland and open water habitat, but may result in a short-term, indirect reduction in water quality from construction runoff near several wetlands in the northern portion of the project area. The SWPPP and SPP (see Appendix D) provide measures to reduce harmful runoff into wetland areas.

Invasive vegetation. The Proposed Action would result in reduced habitat quality from the spread of existing invasive vegetation and the introduction of new species of invasive vegetation. The potential for invasive vegetation that is currently occurring in Spring Valley to spread and for new invasive species to be introduced would be highest along the linear features of Proposed Action, the roads and collection system. Because the roads and collection system would be located away from drainage bottoms and wetlands and would be located to minimize stream crossings and avoid damage to wetlands, the effects of invasive vegetation on waterfowl and shorebird habitat quality would be minimal.

Direct injury or mortality. Construction activities and increased vehicle traffic associated with the Proposed Action would result in an increased risk of injury and mortality to individual waterfowl and shorebirds from collisions in the project area. Waterfowl and shorebirds are highly mobile and would be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the 9- to 12-month construction period.

Erosion and runoff. Habitat and drinking water supplies would be impacted as a result of changes in surface water quality in the project area. Increased erosion and runoff as a result of the Proposed Action would change surface water quality during the 9- to 12-month construction period. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting habitat and drinking water supplies for waterfowl and shorebirds is minimal.

Noise. The increased noise associated with construction of the Proposed Action would be audible at wetland habitat within the project area intermittently throughout the 9- to 12-month construction phase. Increased noise would discourage waterfowl and shorebird species use of the project area.

Interference with behavioral activities. Because the roads and collection system would be located away from drainage bottoms and wetlands, and undisturbed nesting habitat occurs outside the project area, the effects of construction activities waterfowl and shorebird behavior would be minimal.

4.2.2.4.2 Operation and Maintenance

Electrocution. The 400-foot-long overhead 230-kV connector transmission line connecting the Spring Valley substation and the Osceola switching station to the NV Energy 230-kV transmission line is the only aboveground transmission line being added under the Proposed Action. The addition of the 230-kV line would result in an increased risk of electrocution to waterfowl and shorebirds flying through the project area. Because the additional 230-kV transmission line would be in close proximity to the existing NV Energy 230-kV line, there would be a minor increase in the risk of electrocution to waterfowl and shorebirds throughout the 30-year duration of the SVWEF.

Noise. The highest noise levels would occur in areas adjacent to the WTGs. Noise levels of 55 dBA, consistent with the current ambient noise level in the area, are projected by the turbine manufacturer to occur at 400 feet from the WTGs. Within that 400-foot area, noise levels from the operation of WTGs could be as high as 60 dBA and may result in reduced nesting and hunting behavior and habitat avoidance by waterfowl and shorebird species. The reduction in habitat quality for waterfowl and shorebirds surrounding WTGs would be less than 1% of available habitat in the Spring Valley watershed.

Collision with turbines, towers, and transmission lines. In general, impacts from the routine operation and maintenance of the SVWEF would be the same as those described for the PEIS. However, turbines installed near water sites would have an increased potential for waterfowl and shorebird strikes. To date researchers have not been able to make a strong correlation between pre-construction data and post-construction mortality for birds (National Wind Coordinating Collaborative [NWCC] 2010); making it impossible to provide an accurate quantitative assessment of mortality to these species. Therefore, pre-construction data have been used to site turbines away from higher use areas, to develop design features and mitigation measures, and to identify mortality risk potential for the species observed (SWCA 2009a:Section 3.1.2; Table 4.2-3). The risk potential is based on site-specific observations of flight characteristics in the RSA and not realized mortality at current wind facilities. For example, common raven has the highest risk index (RI), but is rarely recorded as a mortality relative to abundance. Therefore, the RI provides a measurement of mortality potential, but cannot be used to quantify actual mortality.

Additionally, an avian mortality threshold has been developed based on an assessment of 11 other projects with the most similar habitats or environmental factors available (see Appendix F:Table 3). The assessment provides an average mortality rate for those facilities (2.70 birds/turbine/year). That mortality rate is used as a threshold (2.7×75 turbines = 203 birds/year) so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the PEIS analysis. Should mortality levels exceed the threshold, adaptive management measures would be implemented to reduce mortality levels below the designated threshold.

Because mitigation measures identified as part of the Proposed Action, including those from the PEIS, would address impacts to most of the bird species observed on-site, impacts are anticipated to be low. To further address impacts to birds, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including avian mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to avian species (see Appendix F:16–20). With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Other shutdown times may be used as phase mitigation allows (see Appendix F:16–20). Additionally, if mortality thresholds defined in the plan for overall avian species are exceeded, the TAC would be responsible for identifying and recommending suitable mitigation(s). Through this adaptive management, no substantial impacts to local and migratory populations are expected. Project-specific impacts to special-status shorebirds are described under Special-status Species (Section 4.3.2.2).

Table 4.2-3. Risk Indices for Avian Species Observed

Species	Frequency (% of Surveys Observed)	Number of Observations	Total Number of Observations in the RSA	% of Observations in RSA	Risk Index*
Common raven	74.4	543	38	7.0	5.2
Canada goose	9.4	64	33	51.6	4.8
Swainson's hawk	9.4	25	8	32.0	3.0
Mourning dove	5.0	15	8	53.3	2.7
Mountain bluebird	25.0	242	24	9.9	2.5
Golden eagle	8.1	13	4	30.8	2.5
Pinyon jay	11.3	194	37	19.1	2.2
Horned lark	46.3	1158	51	4.4	2.0
Brewer's blackbird	6.9	71	19	26.8	1.8
American kestrel	21.9	58	4	6.9	1.5
American robin	8.8	81	12	14.8	1.3
Red-tailed hawk	1.9	3	2	66.7	1.3
Long-billed curlew	3.1	13	4	30.8	1.0
Cooper's hawk	1.3	2	1	50.0	0.7
Ferruginous hawk	1.3	2	1	50.0	0.7
Yellow-headed blackbird	1.3	2	1	50.0	0.7
Turkey vulture	0.6	4	4	100.0	0.6
House finch	0.6	2	2	100.0	0.6
Northern harrier	15.0	29	1	3.4	0.5
Killdeer	6.9	15	1	6.7	0.5
Blue-gray gnatcatcher	6.3	18	1	5.6	0.4
Black-billed magpie	16.9	49	1	2.0	0.3
Sandhill crane	1.9	6	1	16.7	0.3
Tree swallow	6.3	34	1	2.9	0.2
Sage thrasher	6.9	32	1	3.1	0.2

* Risk Index = (Frequency × % of Observations in RSA) / 100

Predation. Because the additional 400-foot-long overhead 230-kV transmission line would not occur near wetland habitat and would be in close proximity to the existing NV Energy 230-kV line, the increased risk of predation of waterfowl and shorebirds throughout the 30-year duration of the SVWEF would not have a measurable change to the biological community.

Workforce presence. Because of the low amounts of human activity throughout the project area during the long-term operation, waterfowl and shorebirds are expected to return to the habitat within and adjacent to the project area following construction.

Decreased aquatic habitat quality. Increased erosion and runoff would result from the increase in impermeable surfaces in the project area. Erosion and runoff would result in reduced aquatic habitat quality. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the slope throughout the project area is less than 10%, the risk of increased erosion and runoff affecting aquatic habitat is minimal. One of the commitments identified in Section 2.4.1.2 states that wetlands would be avoided as part of the Proposed Action, further reducing the risk to aquatic habitat.

Interference with behavioral activities. Changes to the behavioral activities, including nesting behavior, of waterfowl and shorebirds would result from the presence of WTGs and associated facilities in the project area. Waterfowl and shorebirds typically nest near water sources, and killdeer is the only species of waterfowl or shorebird that was observed nesting within the project area. Other changes in behavioral activities of waterfowl and shorebird species would be consistent with those impacts described under Noise and Workforce presence.

4.2.2.5 SONGBIRDS

4.2.2.5.1 Construction

Habitat disturbance. Generally, songbirds nest in any of the vegetation communities found within the project area. Loss of habitat from short- and long-term disturbance or modification of general songbird habitat would occur and would be the same acreages as those described for small mammals.

Invasive vegetation. Impacts from the spread of invasive vegetation on general songbird habitat would be the same as those described for small mammals. Increased presence of invasive vegetation can indirectly affect songbirds by changing available food supplies in the project area.

Direct injury or mortality. Construction activities and increased vehicle traffic associated with the Proposed Action would result in an increased risk of injury and mortality to individual songbirds in the project area. Songbirds are highly mobile and would be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the 9- to 12-month construction period. Construction activities would be restricted during nesting season, as identified in Section 5.9.5.3.2 of the PEIS, to further reduce the risk of injury or direct mortality of nesting songbirds during construction.

Noise. The increased noise associated with construction of the Proposed Action would be audible throughout the project area over the course of the 9- to 12-month construction phase. Increased noise would result in habitat avoidance and changes to breeding behavior of songbirds in the project area.

Interference with behavioral activities. Changes in behavioral activities of songbird species would be consistent with those impacts described under Noise.

4.2.2.5.2 Operation and Maintenance

Electrocution. The 400-foot-long overhead 230-kV connector transmission line connecting the Spring Valley substation to the Osceola switching station onto the NV Energy 230-kV transmission line is the only aboveground transmission line being added under the Proposed Action. The addition of the 230-kV line would result in an increased risk of electrocution to songbirds flying through the project area. Because the additional 230-kV transmission line would be in close proximity to the existing NV Energy 230-kV line, there would be a minor increase in the risk of electrocution to songbirds throughout the 30-year duration of the SVWEF.

Noise. The highest noise levels would occur in areas adjacent to the WTGs. Noise levels of 55 dBA, consistent with the current daytime ambient noise level in the area, are projected by the turbine manufacturer to occur 400 feet from the WTGs. Within that 400-foot area, noise levels from the operation of WTGs could be as high as 60 dBA and may result in reduced nesting and hunting behavior and habitat avoidance by songbird species.

Collision with turbines, towers, and transmission lines. In general, the risks of songbird injury or mortality from collisions with WTGs, towers, and transmission lines would be the same as those described for the PEIS. Passerines are the most common group of birds killed at new wind energy projects (BLM 2005). To date researchers have not been able to make a strong correlation between pre-construction data and post-construction mortality for birds (NWCC 2010); making it impossible to provide an accurate quantitative assessment of mortality to these species. Therefore, pre-construction data has been used to site turbines away from higher use areas, to develop design features and mitigation measures, and to identify mortality risk potential for the species observed (SWCA 2009a:Section 3.1.2; see Table 4.2-3). The risk potential is based on site-specific observations of flight characteristics in the RSA and not realized mortality at current wind facilities. For example, common raven has the highest RI, but is rarely recorded as a mortality relative to abundance. Therefore, the RI provides a measurement of mortality potential, but cannot be used to quantify actual mortality.

Additionally, an avian mortality threshold has been developed based on an assessment of 11 other projects with the most similar habitats or environmental factors available (see Appendix F:Table 3). The assessment provides an average mortality rate for those facilities (2.70 birds/turbine/year). That mortality rate is used as a threshold (2.70 × 75 turbines = 203 birds/year) so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the PEIS analysis. Should mortality levels exceed the threshold, adaptive management measures would be implemented to reduce mortality levels below the designated threshold.

To further address impacts to birds, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including avian mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to avian species (see Appendix F:16–20). With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Other shutdown times may be used as phase mitigation allows (see Appendix F:16–20). Additionally, if mortality thresholds defined in the plan for overall avian species are exceeded, the TAC would be responsible for identifying and recommending suitable mitigation(s). Although injury or mortality of individual local and migratory songbirds would occur as a result of the presence of WTGs, implementation of the ABPP would address the risk that these impacts would result in population-level changes to the songbird species in the region.

Predation. Increased perching habitat for avian predators would result from adding the 230-kV aboveground connector transmission line connecting the Spring Valley substation to the Osceola switching station and onto the NV Energy 230-kV aboveground 230-kV line. Because the additional 230-kV transmission line would be in close proximity to the existing NV Energy 230-kV line, there would be a minor increased risk of predation of songbirds throughout the 30-year duration of the SVWEF.

Workforce presence. Because of the low amounts of human activity throughout the project area during the long-term operation, songbirds are expected to return to the habitat within and adjacent to the project area following construction.

Interference with behavioral activities. The introduction of WTGs and associated facilities is expected to result in small, local changes in migratory movements as songbirds fly over or around the new structures, continuing on their path, but would not result in regional changes to migratory movements.

Other impacts from routine operation and maintenance activities for the SVWEF would be similar for songbirds as are described for waterfowl and shorebirds. Reduced avian use within 50 to 100 m of a WTG as a result of WTG noise, maintenance activities, and reduced habitat attractiveness has been recorded at multiple wind facilities (Erickson et al. 2000; Johnsen et al. 2000; Leddy et al. 1999). Therefore, it is assumed that birds would occur near WTGs but that overall activity levels would be reduced within 100 m. This equates to a reduction in habitat quality of 582 acres, or 0.1% of general songbird nesting habitat in Spring Valley.

4.2.2.6 BIRDS OF PREY AND VULTURES

4.2.2.6.1 Construction

Habitat disturbance. Generally, birds of prey and vultures nest in any of the vegetation communities found within the project area. Impacts from short- and long-term disturbance or modification of habitat for birds of prey and vultures would be the same as those described for small mammals.

Invasive vegetation. Impacts from the spread of invasive vegetation would be the same as those described for small mammals.

Direct injury or mortality. Construction activities and increased vehicle traffic associated with the Proposed Action would result in an increased risk of injury and mortality to individual birds of prey and vultures in the project area. Birds of prey and vultures are highly mobile and would be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the 9- to 12-month construction period. Construction activities would be restricted during nesting season, as identified in Section 5.9.5.3.2 of the PEIS, to further reduce the risk of injury or direct mortality of nesting birds of prey and vultures during construction.

Noise. The increased noise associated with construction of the Proposed Action would be audible throughout the project area over the course of the 9- to 12-month construction phase. Increased noise would result in habitat avoidance and changes to breeding behavior of in the project area.

Interference with behavioral activities. Construction activities would result in a short-term disturbance to the migratory movements of raptors through Spring Valley. Because Spring Valley is not within a major migration corridor for birds of prey and vultures, and raptor migration surveys in Spring Valley resulted in a passage rate of 0.81 bird/hour (SWCA 2009a), the disturbance to migratory movements would be minor.

Four nests that could be used by raptors are known to occur in the project area, including one Swainson’s hawk nest that was active in 2007. Turbines within 0.5 mile of known raptor nests and would increase the potential for temporary displacement during construction, if a breeding pair attempted to use one of these nests. The nearest recorded ferruginous hawk nest would be more than 1 mile from the closest WTG, consistent with USFWS guidelines for the species.

4.2.2.6.2 Operation and Maintenance

Electrocution. The 400-foot-long overhead 230-kV connector transmission line connecting the Spring Valley substation to the Osceola switching station onto the NV Energy 230-kV transmission line would be the only aboveground transmission line. The presence of a power line would increase the potential for birds of prey and vultures to be killed from power line collisions and electrocution. Power poles are attractive sites for birds of prey and vultures to perch, roost, loaf, and nest. This behavior brings birds into the proximity of live power lines and can often lead to collisions with wires and electrocution.

Noise. The highest noise levels would occur in areas adjacent to the WTGs. Noise levels of 55 dBA, consistent with the current daytime ambient noise level in the area, are projected by the turbine manufacturer to occur 400 feet from the WTGs. Within that 400-foot area, noise levels from the operation of WTGs could be as high as 60 dBA and may result in reduced nesting and hunting behavior and habitat avoidance by bird of prey and vultures.

Collision with turbines, towers, and transmission lines. WTGs located near known nest locations would have potential increased impacts to raptors as a result of turbine strikes. To date researchers have not been able to make a strong correlation between pre-construction data and post-construction mortality for raptors (NWCC 2010); making it impossible to provide an accurate quantitative assessment of mortality to these species. Therefore, pre-construction data has been used to site turbines away from higher use areas, to develop design features and mitigation measures, and to identify mortality risk potential for the species observed (SWCA 2009a:Section 3.1.1; Table 4.2-4). The risk potential is based on site-specific observations of flight characteristics in the RSA and not realized mortality at current wind facilities. For example, turkey vulture has the highest RI, but is rarely recorded as a mortality relative to abundance. Therefore, the RI provides a measurement of mortality potential, but cannot be used to quantify actual mortality.

Table 4.2-4. Risk Indices for Raptors Observed

Species	Frequency (% of Surveys Observed)	Number of Observations	Number of Observations in RSA	% of Observations in RSA	Risk Index*
Turkey vulture	44.4	33	10	30.3	13.5
Red-tailed hawk	30.6	20	8	40.0	12.2
Northern harrier	25.0	10	4	40.0	10.0
Golden eagle	19.4	8	4	50.0	9.7
American kestrel	22.2	10	3	30.0	6.7
Rough-legged hawk	8.3	4	2	50.0	4.2
Swainson's hawk	13.9	9	2	22.2	3.1
Prairie falcon	13.9	5	1	20.0	2.8
Sharp-shinned hawk	19.4	11	1	9.1	1.8
Cooper's hawk	8.3	6	1	16.7	1.4
Ferruginous hawk	16.7	6	0	0.0	–
Bald eagle	2.8	1	0	0.0	–

*RI = (Frequency × % of Observations in RSA) / 100

Additionally, an avian mortality threshold has been developed based on an assessment of 11 other projects with the most similar habitats or environmental factors available (see Appendix F:Table 3). The assessment provides an average mortality rate for those facilities (2.70 birds/turbine/year). That mortality rate is used as a threshold (2.7 × 75 turbines = 203 birds/year) so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the PEIS analysis. Should mortality levels exceed the threshold, adaptive management measures would be implemented to reduce mortality levels below the designated threshold.

Turbines installed near water sites would have an increased potential for bird strikes; however, measures listed as part of the Proposed Action (Section 2.1.4) would help reduce impacts by avoiding areas where birds of prey congregate. Additionally, each year prior to the onset of the migratory bird breeding season (March 15 to July 30), raptor nests surveys would be completed to identify active nests within 0.5 mile of a turbine. If a nest is found to be in use, the TAC would determine necessary action based on the ABPP (see Appendix F:10–11). To further address impacts to raptors, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including raptor mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to raptor species (see Appendix F:16–20). With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Other shutdown times may be used as phase mitigation allows (see Appendix F:16–20). Additionally, if mortality thresholds defined in the plan for overall avian species are exceeded, the TAC would be responsible for identifying and recommending suitable mitigation(s). Although injury or mortality of individual raptors would occur as a result of the presence of WTGs, towers, and transmission line, implementation of the ABPP would address the risk that increased injury or mortality would result in population-level changes to the raptor species in the region.

Workforce presence. Because of the low amounts of human activity projected to occur throughout the project area during the long-term operation, birds of prey and vultures are expected to return to habitat within and adjacent to portions of the project area following construction.

Interference with behavioral activities. Changes in behavioral activities of birds of prey and vulture are consistent with the changes described under construction impacts. The introduction of WTGs and associated facilities would result in changes to the migratory movements of raptors through Spring Valley. Additionally, the presence of WTGs would increase the risk of nest abandonment in and near the project area.

4.2.2.7 BATS

4.2.2.7.1 Construction

Habitat disturbance. During construction, there would be short-term disturbance to 336.9 acres of habitat that may provide foraging area for bats, which represents 3.9% of the total available foraging area within the project area. The loss of vegetation would occur as a result of construction of turbine foundations, the MET tower footprint, access roads, and ancillary facilities. All areas of temporary habitat disturbance would be reclaimed following the completion of construction activities, which are anticipated to last 9 to 12 months. Long-term disturbance areas would include wind turbine pads, O&M building, access road footprints, and associated infrastructure. Total long-term disturbance would include 111.1 acres of habitat that may provide foraging area for bats, or 1.3% of the project area. The habitat that would be lost does not have unique characteristics, relative to other habitat available in Spring Valley.

Invasive vegetation. Impacts from the spread of invasive vegetation would be the same as those described for small mammals.

Direct injury or mortality. Construction activities and increased vehicle traffic associated with the Proposed Action would result in an increased risk of injury and mortality to individual bats in the project area. Bats are likely to be present in the project area at night, when the majority of construction activities are not occurring. In addition, bats are highly mobile and would be able to avoid vehicle traffic, clearing, grading, and excavation activities that would occur during the 9- to 12-month construction period.

Noise. The increased noise associated with construction of the Proposed Action would be audible throughout the project area over the course of the 9- to 12-month construction phase. Increased noise may result in habitat avoidance and changes to foraging patterns in the project area. Because bats are likely to be present in the project area at times when construction activities are not occurring, the impacts from increased noise would be minimal.

Interference with behavioral activities. Changes in behavioral activities of bats would be consistent with those impacts described under Noise.

4.2.2.7.2 Operation and Maintenance

Noise. There is no breeding or roosting habitat in the project area that would be affected by noise. Based on currently operating projects, bats are known to forage around wind turbines, and there is no current literature to support the hypothesis that increased noise from WTGs directly impacts bat species.

Collision with turbines, towers, and transmission lines. Injury or mortality to individual bats would likely result from development of the SVWEF due to collisions with turbine blades (Arnett et al. 2008; BLM 2005) and barotrauma (Baerwald et al. 2008). Barotrauma results when bats fly within low-pressure airspace created in the WTG blade's wake. To date researchers have not been able to make a strong correlation between pre-construction data and post-construction mortality for bats (NWCC 2010); making it impossible to provide an accurate quantitative assessment of mortality to these species. However, previous studies indicate that there is the potential to injure or kill numerous bats at wind energy facilities (Arnett 2005; BLM 2005; Kerlinger et al. 2006) and that some species, such as migratory tree roosting species, are more likely to be injured or killed at wind energy facilities (Arnett et al. 2008), especially during the fall migratory period (Arnett et al. 2008). A study by Arnett et al. (2008) showed that four of the eight general bat species identified through acoustic surveys have been reported as mortalities at other wind energy facilities and include little brown bat, big-brown bat, silver-haired bat, and hoary bat; therefore, these species are anticipated to be at increased risk, compared with other general bat species. Additionally, four species of bats are state protected, including the Brazilian free-tailed bat, pallid bat, Townsend's big-eared bat, and western red bat. State-protected bat species are described in detail under Sensitive Species in Section 4.3.2.6.

Additionally, a bat mortality threshold has been developed based on an assessment of 11 other projects with the most similar habitats or environmental factors available (see Appendix F:Table 3). The assessment provides an average mortality rate for those facilities (2.56 bats/turbine/year). That mortality rate is used as a threshold (2.56 × 75 turbines = 192 bats/year) so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the PEIS analysis. Should mortality levels exceed the threshold, adaptive management measures would be implemented to reduce mortality levels below the designated threshold.

Adaptive management is discussed in the Revised Nevada Bat Conservation Plan (Bradley et al. 2006), which identifies wind energy development as an anthropogenic threat to bats. Bradley et al. (2006) recommends that rigorous post-construction monitoring take place at wind energy facilities in order to identify the effects on the local bat populations; as effects are understood, management and mitigation can be designed accordingly. The ABPP (see Appendix F) developed for the project follows those principles and would address the risk that increased injury or mortality to bats would result in population-level changes to the bat species in the region. Under the plan, a TAC would monitor SVWEF activities, including bat mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to bat species (see Appendix F:16–20). With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for bats, specifically when high bat activity is observed at Rose Guano Bat Cave (see Appendix F:5–7). Other shutdown times may be used as phase mitigation allows (see Appendix F:16–20). Additionally, if mortality thresholds defined in the plan for overall bat species are exceeded, the TAC would be responsible for identifying and recommending suitable mitigation(s). Additionally, an initial mitigation measure would implement cut-in speed increases (i.e., curtailment) during peak Brazilian free-tailed bat activity. This mitigation measure has been shown to greatly reduce bat mortality (53%–87%) when cut-in speeds of wind turbines are increased (Arnett et al. 2009; Baerwald 2008) during the fall migratory period. Although the measure is geared toward Brazilian free-tailed bats, it would likely indirectly reduce impacts to all bat species. If bat mortality is recorded over the threshold, the BLM authorized office is able to require increases in the utilization of curtailment as described in Appendix F, pages 16 to 20.

Workforce presence. Because bats are likely to be present in the project area at times when human activity is not occurring, and because of the low amounts of human activity at other times that are projected to occur throughout the project area during long-term operation, bats would not be affected by the increased levels of human activity associated with maintenance and operation of the SVWEF.

Interference with behavioral activities. The introduction of WTGs and associated facilities is expected to result in small, local changes in migratory movements as bats fly over or around the new structures, continuing on their path, but would not result in regional changes to migratory movements. There are no known effects on bat behavior from the presence of MERLIN or VESPER radar systems. Impacts to the migratory movements of the Brazilian free-tailed bat are described in Section 4.3.2.6, Special-status Species.

4.2.3 Alternate Development Alternative

The effects of the Alternate Development Alternative on general wildlife species would be similar in nature to those described under the Proposed Action. The Alternate Development Alternative includes the same facilities and the same number of WTGs and follows the same construction methods and timeline. However, the size of the project area is reduced to 7,673 acres, and the 75 WTG locations have been selected to avoid resource issues, including important wildlife resources. The following criteria related to wildlife and wildlife habitat were applied in selecting the alternative WTG sites and associated infrastructure:

- At least 0.5 mile from recorded active raptor nests;
- At least 0.5 mile from open water sources;
- Outside occupied and high-quality pygmy rabbit habitat; and
- At least 2 miles from active sage-grouse leks.

In addition, there would be fewer short- and long-term surface disturbances associated with the roads and collection system of the Alternate Development Alternative. The following sections describe only the exceptions to impacts described under the Proposed Action.

4.2.3.1 REPTILES AND AMPHIBIANS

4.2.3.1.1 Construction

Habitat disturbance. During construction, there would be short-term disturbance to 325.4 acres of habitat for the Great Basin spadefoot toad and all of the reptiles identified in Section 3.2.1, which represents 4.2% of total habitat within the Spring Valley. Temporary use areas would be reclaimed after construction and would result in negligible impacts. Long-term disturbance areas would include wind turbine pads, O&M building, access road footprints, and associated infrastructure. Total long-term disturbance would include 104.7 acres of habitat, or 1.4% of the project area, which would be a negligible impact. As part of the Proposed Action, all wetland areas would be avoided; therefore, no direct impacts to amphibian breeding habitat are expected.

Erosion and runoff. Changes in surface water quality would result in reduced reproductive success of amphibians using on-site surface waters. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the Alternate Development alternative would exclude construction activities within 0.5 mile of existing surface waters in the project area, the risk of increased erosion and runoff affecting surface water quality would be less than under the Proposed Action.

4.2.3.1.2 Operation and Maintenance

Decreased aquatic habitat quality. Increased erosion and runoff would result from the increase in impermeable surfaces in the project area. Erosion and runoff would result in reduced aquatic habitat quality. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the Alternate Development alternative would exclude construction activities within 0.5 mile of existing surface waters in the project area, the risk of increased erosion and runoff affecting surface water quality would be less than under the Proposed Action.

4.2.3.2 SMALL MAMMALS

4.2.3.2.1 Construction

Habitat disturbance. Impacts to small mammals from construction of the Alternate Development Alternative would be similar to those described for the Proposed Action. During construction, there would be short-term disturbance to 325.4 acres of small-mammal habitat, which represents 4.2% of the project area. Temporary use areas would be reclaimed after construction. Long-term disturbance areas would include wind turbine pads, the O&M building, access road footprints, and associated infrastructure. Total long-term disturbance would include 104.7 acres of habitat, or 1.4% of the project area.

Erosion and runoff. Drinking water supplies would be impacted as a result of changes in surface water quality in the project area. Because the effects would be localized to surface waters receiving increased site runoff in the project area and the Alternate Development alternative would exclude construction activities within 0.5 mile of existing surface waters in the project area, the risk of increased erosion and runoff affecting drinking water supplies for small mammals would be less than under the Proposed Action.

4.2.3.2.2 Operation and Maintenance

Impacts to small mammals from the operation and maintenance of the SVWEF under the Alternate Development Alternative are expected to be the same as those identified for the Proposed Action.

4.2.3.3 BIG-GAME SPECIES

4.2.3.3.1 Construction

Impacts to big-game species from construction of the Alternate Development Alternative would be similar to those described for the Proposed Action. However, impacts to pronghorn habitat would be reduced based on the smaller overall project footprint. Pronghorn would be displaced from the project area for approximately 9 to 12 months during construction. All 7,673 acres should be considered an effective loss of habitat during construction, which equates to a 1.3% loss of available habitat in Spring Valley and no loss of crucial wintering habitat. Permanent removal of 104.7 acres of habitat under the Alternate Development Alternative would represent a loss of only 0.02% of the available habitat in Spring Valley.

4.2.3.3.2 Operation and Maintenance

Impacts to big-game species from the operation and maintenance of the SVWEF under the Alternate Development Alternative are expected to be the same as those identified for the Proposed Action.

4.2.3.4 WATERFOWL AND SHOREBIRDS

4.2.3.4.1 Construction

Because open water sources would be avoided by at least 0.5 mile, the intensity of both direct and indirect impacts described under the Proposed Action would be reduced. Direct mortality from construction equipment would be unlikely because of the distance from water sources used by waterfowl and shorebirds. The potential for erosion and runoff to impact wetland area would be negligible because of the distance runoff would have to travel to enter wetlands and because of implementation of BMPs. Noise levels at wetland areas would be reduced from 42–46 to 37–45 dBA.

4.2.3.4.2 Operation and Maintenance

Impacts from collisions of waterfowl and shorebirds with WTGs are expected to be lower under the Alternate Development Alternative because WTGs would be placed farther away from the preferred habitat for these species.

4.2.3.5 SONGBIRDS

4.2.3.5.1 Construction

Because open water sources would be avoided by at least 0.5 mile and many songbirds aggregate new open water, the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.2.3.5.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. Impacts from collisions of songbirds with WTGs are expected to be lower under the Alternate Development Alternative because WTGs would be placed farther away from wetland areas where songbirds are more abundant.

Interference with behavioral activities. As discussed under the impacts analysis for the Proposed Action, songbird density would be reduced within 80 m of a WTG, which would affect 372.6 acres of habitat. This equates to a reduction in habitat quality for 0.1% of general songbird habitat in Spring Valley.

4.2.3.6 BIRDS OF PREY AND VULTURES

4.2.3.6.1 Construction

Interference with behavioral activities. Four nests that could be used by raptors are known to occur in the Proposed Action APE, including one Swainson's hawk nest that was active in 2007. Under the Alternate Development Alternative, construction activities would not occur within 0.5 mile of these raptor nests or within 0.5 mile of existing surface waters. The nearest recorded ferruginous hawk nest would be more than 1 mile from the closest WTG, consistent with USFWS guidelines for the species.

4.2.3.6.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. WTGs would not be located within 0.5 mile of active raptor nests or surface waters. This would reduce the risk of injury or mortality of raptors from collision with WTGs. Additionally, as described under the Proposed Action, each year prior to the onset of the migratory bird breeding season (March 15–July 30), and once each month during the season, raptor nest surveys would be completed to identify active nests within 0.5 mile of a turbine. If a nest is found to be in use, the TAC would determine necessary action based on the ABPP (see Appendix F). Although injury or mortality of individual raptors is still anticipated to occur under the Alternate Development Alternative, WTG site selection, nest surveys, and implementation of the ABPP would address the risk that increased injury or mortality would result in population-level changes to the raptor species in the region.

4.2.3.7 BATS

4.2.3.7.1 Construction

Because open water sources would be avoided by at least 0.5 mile and bat activity is generally concentrated near open water (SWCA 2009a), the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.2.3.7.2 Operation and Maintenance

The Alternate Development Alternative would modify wind turbine arrangement in order to buffer water resources by at least 0.5 mile, which would result in the exclusion of all surface water resources from the project area. Since bat activity is known to be higher near water resources (SWCA 2009a), the intensity of both direct and indirect impacts described under the Proposed Action would be reduced. Although injury or mortality of individual bats is still anticipated to occur under the Alternate Development Alternative, WTG site selection, and implementation of the ABPP would address the risk that increased injury or mortality would result in population-level changes to bat species in the region.

4.2.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied, and current land uses would continue. Under the No-Action Alternative, wildlife species that are currently in the project area would continue to use the habitat. The infrequent disturbances that result from current land uses would continue under the No-Action Alternative. The impacts to wildlife from those disturbances would continue to affect wildlife individuals, but populations would remain unaffected.

4.3 Special-Status Species

This section discusses impacts to special-status species from the construction and operation of the SVWEF. Both indirect and direct impacts are analyzed for special-status species and their habitats. Wherever possible, impacts are discussed in quantifiable terms.

4.3.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to special-status species from a typical wind energy facility are not explicitly described in the PEIS. However, the PEIS states, “Construction activities could affect threatened, endangered, and sensitive species in the same manner that vegetation, wildlife, and aquatic resources could be affected”

(BLM 2005:5-49). Therefore, PEIS impacts described for wildlife (Section 4.2.1) apply to special-status species. Gallinaceous birds and vegetation were not covered in Section 4.2.1 and are therefore described in this section. A summary of the related mitigation measures that have been fully analyzed in the PEIS for these species is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.3.1.1 GALLINACEOUS BIRDS

4.3.1.1.1 Construction

In general, impacts described in the PEIS (Section 4.2.1 of this EA) for other bird species apply to gallinaceous birds. Specific to the greater sage-grouse, the PEIS states that site construction could be a source of auditory and visual disturbance that could cause them to avoid traditional use areas and reduce use of leks (BLM 2005; Young et al. 2003). Disturbance during construction also appears to limit reproduction opportunities and result in regional population declines (BLM 2005).

4.3.1.1.2 Operation and Maintenance

The PEIS states that site operation could also be a source of auditory and visual disturbance that could cause them to avoid traditional use areas and reduce use of leks (BLM 2005; Young et al. 2003). Additionally, disturbance during construction appears to limit reproduction opportunities and result in regional population declines (BLM 2005).

WTGs and infrastructure (transmission lines and access roads) may adversely affect habitats important to gallinaceous birds by causing fragmentation, reducing habitat value, or reducing the amount of habitat available (Braun 1998). WTGs and other structures can also provide perches and nesting areas for raptors and ravens that may prey on sage-grouse (BLM 2005).

4.3.1.2 VEGETATION

4.3.1.2.1 Construction

While the PEIS does not describe impacts to Parish phacelia, construction-related impacts to vegetation in Section 5.9.2.1 would be applicable to this special-status plant species. These impacts include direct mortality resulting from site clearing and grading and construction activities. Increased levels of fugitive dust resulting from construction activities may result in decreased photosynthesis, loss of cuticular wax on leaves, and decreased plant productivity. Exposure to contaminants resulting from refueling equipment may slow re-establishment of vegetation in disturbed areas. The introduction of noxious and invasive vegetation resulting from site clearing and grading could result in the displacement of native plants.

4.3.1.2.2 Operation and Maintenance

Operation-related impacts to vegetation in Section 5.9.3.1 would be applicable to Parish phacelia. Site maintenance activities that include mowing vegetation and application of herbicides may prevent re-establishment and natural succession of plant communities. Exposure to contaminants (fuels, pesticides, hazardous waste) may impact localized areas where spills occur.

Vegetation may be indirectly impacted from OHV use, site use, and illegal dumping as a result of increased access to BLM lands. Legal and illegal take of plants may result from increased access to BLM lands. Introduction of invasive vegetation may occur through OHV and hiking use, Greater human activity may also result in increased risk of wildfire through campfires, OHV use, and cigarettes.

4.3.2 Proposed Action

4.3.2.1 SMALL MAMMALS

Impacts to pygmy rabbits resulting from implementation of the Proposed Action would be similar to those impacts to small mammals described in the wildlife section (4.2.2.2). However, because pygmy rabbit habitat is limited in its distribution, the frequency of impacts would be lower; conversely, the sensitive nature of the species means that impacts would have an increased intensity.

4.3.2.1.1 Construction

Habitat disturbance. Under the Proposed Action, three turbine locations and associated infrastructure would result in the long-term removal of 0.29 acre (0.71%) of high -quality or occupied pygmy rabbit habitat. Additionally, construction activities would result in the long-term removal of 35.6 acres (1.1%) of potential pygmy rabbit habitat and short-term disturbance of an additional 139.7 acres (3.8%) of potential pygmy rabbit habitat. The 139.7 acres would be reclaimed following construction; but could take an estimated 10 years before the short-term disturbance areas are successfully reclaimed (see Appendix A). Even when vegetation is established following reclamation efforts, the composition of species and structure of plants in the recovery area are often different from the original plant community. Restoration would be less effective for pygmy rabbits because they prefer tall, decadent stands of sagebrush, which take years to establish, but it would provide some cover and forage. Therefore, even with restoration activities, the loss of occupied and high-quality habitat and potential habitat could lead to local population decreases because pygmy rabbits require specific habitat characteristics that limit available areas to colonize. Regional population levels are not expected to be affected because of the small amount of habitat loss relative to the Spring Valley watershed (0.01%). In addition, the Proposed Action includes sagebrush restoration and enhancement activities (see Section 2.1.5 and Appendix A), which would make new habitat available and/or increase the quality of existing habitat for pygmy rabbit.

All other impacts to pygmy rabbit would be the same as those described for small mammals (see Section 4.2.2.2).

4.3.2.1.2 Operation and Maintenance

All operation and maintenance impacts to pygmy rabbit would be the same as described for small mammals (see Section 4.2.2.2).

4.3.2.2 WATERFOWL AND SHOREBIRDS

Impacts to long-billed curlew, sandhill crane, and willet resulting from implementation of the Proposed Action would be similar to those impacts to waterfowl and shorebirds described in the wildlife section (4.2.2.4). However, because long-billed curlew, sandhill crane, and willet have lower site use, the frequency of impacts would be lower; conversely, the sensitive nature of the species means that impacts would have an increased intensity.

4.3.2.2.1 Construction

Construction-related impacts to long-billed curlew, sandhill crane, and willet resulting from implementation of the Proposed Action would be the same as those impacts to waterfowl and shorebirds described in the wildlife section (4.2.2.4).

4.3.2.2.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. Impacts from the routine operation and maintenance of the SVWEF would be similar to those described in the wildlife section (4.2.2.2). WTGs installed near (less than 0.5 mile) water sites where higher activity was observed would have an increased potential for waterfowl and shorebird strikes. Because of their low representation during project area surveys, injury or mortality of sandhill cranes and willets from collisions with WTGs, towers, and transmission lines are expected to be rare.

Although long-billed curlews have never been recorded as a mortality at any wind energy facility, because of their more frequent representation during project area surveys, and observation of their presence in the RSA, occurrences of injury or mortality of long-billed curlews from collisions with WTGs, towers, and transmission lines are expected to occur and to be more frequent than those of sandhill cranes and willets. To further address impacts to special-status waterfowl, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including species specific mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to special-status waterfowl and shorebirds species. With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Although injury or mortality of individual special-status waterfowl and shorebirds is expected to occur as a result of the presence of WTGs, towers, and transmission line, species-specific mortality thresholds for long-billed curlews, sandhill cranes, and willets have been developed in the ABPP (see Appendix F:Table 4) to address the higher potential for population-level impacts to those species and reduce the risk that increased injury or mortality would result in local or regional population-level changes. Phased mitigation has not been proposed for specific species because it is currently unknown whether or which species would exceed mortality thresholds. Therefore, if species-specific thresholds are exceeded, the TAC would determine what mitigation, if any, should be recommended for implementation, and the BLM Authorized Officer would approve the measure if determined appropriate. Mitigation may include development of a phased approach for the species similar to the mitigation approach for general birds and bats.

4.3.2.3 SONGBIRDS

4.3.2.3.1 Construction

Impacts to special-status songbirds are expected to be the same as those described for songbirds in the wildlife section of this document (see Section 4.2.2.5). To reduce impacts associated with direct mortality and displacement of nesting birds during construction, construction activities should be restricted during nesting season, as identified in Section 5.9.5.3.2 of the PEIS.

Habitat disturbance. There were eight species of special-status songbirds observed during avian studies (see Table 3.2-2), and each species could nest in the project area. While the overall loss of habitat described for migratory birds would be the same as those for birds of conservation concern, their association with specific habitat types means they would realize differing levels of long-term impacts from the loss of their preferred habitat. Juniper titmouse, pinyon jay, and red-naped sapsucker all prefer nesting in pinyon-juniper habitat, and none would be removed as a result of the Proposed Action. Sage thrasher, Brewer’s sparrow, vesper sparrow, loggerhead shrike, and sage sparrow prefer sagebrush and mixed desert scrub habitat, and there would be 39.6 acres removed.

4.3.2.3.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. In general, impacts from the routine operation and maintenance of the SVWEF would be the same as those described in the wildlife section (4.2.2.2). Because of their low representation during project area surveys both in the project area and through the RSA, injury or mortality of brewer's sparrow, pinyon jay, vesper sparrow, sage sparrow and red-naped sapsucker from collisions with WTGs, towers, and transmission lines are expected to be a rare occurrence at the SVWEF.

Because of their more frequent representation during project area surveys, and observation of their presence in the RSA, occurrences of injury or mortality of loggerhead shrikes from collisions with WTGs, towers, and transmission lines are expected to occur and to be more frequent than the other special-status songbirds.

To further address impacts to special-status songbirds, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including special-status songbird specific mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to special-status songbird species. With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Although injury or mortality of individual special-status songbirds is expected to occur as a result of the presence of WTGs, towers, and transmission line, species-specific mortality thresholds for special-status songbirds have been developed and are included in the ABPP (see Appendix F) to address the higher potential for population impacts to those species and reduce the risk that increased injury or mortality would result in local or regional population-level changes. Phased mitigation has not been proposed for specific species because it is currently unknown whether or which species would exceed mortality thresholds. Therefore, if species-specific thresholds are exceeded, the TAC would determine what mitigation, if any, should be recommended for implementation, and the BLM Authorized Officer would approve the measure if determined appropriate. Mitigation may include development of a phased approach for the species similar to the mitigation approach for general birds and bats.

4.3.2.4 GALLINACEOUS BIRDS

Impacts to greater sage-grouse resulting from implementation of the Proposed Action would be similar to impacts to all birds described in the wildlife section (4.2.2.5). However, the sensitive nature of the species means that impacts would have an increased intensity.

4.3.2.4.1 Construction

Habitat disturbance. Construction activities would result in the short-term disturbance of 139.7 acres of sage-grouse habitat, which is 3.8% of total habitat within the project area. A Restoration and Weed Management Plan (see Appendix A), including post-construction reclamation of short-term disturbance areas for sage-grouse habitat. It could take up to 10 years before short-term disturbance areas are successfully reclaimed. Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community. As a result, short-term disturbance areas would be a long-term impact because of the time required for successful recovery of the habitat.

Construction activities would also result in the long-term removal of 39.6 acres of habitat, or 1.1% of total habitat within the project area. This habitat disturbance would occur for the duration of the 30-year SVWEF and the subsequent 10 years for successful decommissioning and reclamation.

Interference with behavioral activities. In addition to the direct disturbance of sage-grouse habitat as a result of construction activities, disturbances to behavioral activities, including foraging, mating, and nesting, would result from construction activities during the 9- to 12-month construction period. Sage-grouse may avoid foraging, breeding behavior, or vacate sites entirely throughout the entire 8,565-acre project area and adjacent habitats during the 9- to 12-month construction phase. Some grouse may permanently abandon the disturbed areas and adjacent habitats.

The PEIS specifically includes suggested management practices (SMPs) for wind energy development, the conservation of sagebrush habitat, and management of sage-grouse (found in the text box titled Compatibility of a Wind Energy Development Project and Gallinaceous Birds, beginning on page 5-73) that would reduce impacts. Additionally, measures in the Proposed Action (see Section 2.1.4 above) and mitigation measures described in Chapter 6 below would be implemented to further reduce the potential for impacts.

4.3.2.4.2 Operation and Maintenance

The operations phase of the Proposed Action would have similar impacts to greater sage-grouse as described in Section 5.9.3.2 of the PEIS (incorporated by reference) for a typical wind energy project in sage-grouse habitat. These impacts include increased predation and interference with behavioral activities.

Predation. The 400-foot-long overhead 230-kV connector transmission line connecting the Spring Valley substation to the Osceola switching station onto the NV Energy 230-kV transmission line is the only aboveground transmission line. Because the current NV Energy 230-kV line provides numerous transmission line poles, perch sites are not a limiting factor in the area; therefore, there would be a negligible increase in predation of sage-grouse along the new line throughout the 30-year duration of the SVWEF.

Interference with behavioral activities. Changes to the behavioral activities of greater sage-grouse, including foraging, nesting, and lek activity would result from the presence of WTGs and associated facilities in the project area. Greater sage-grouse are expected to avoid areas of up to 2 miles surrounding WTGs, towers, and transmission lines. This 38,289-acre avoidance area includes the additional Bastian Creek and Majors allotment fence lines northeast of the project area and would be 9% of available greater sage-grouse habitat in Spring Valley, throughout the 30-year duration of the SVWEF. Conversely, the Proposed Action includes sagebrush restoration and enhancement activities (see Section 2.1.5 and Appendix A), which would make new habitat available and/or increase the quality of existing habitat for greater sage-grouse. Additionally, two turbine sites would be located within 2 miles of the Bastian Creek lek, and if installed, there would be an increased potential to disturb sage-grouse and cause a decrease in lek success or even lek abandonment. Because there is currently an existing road and distribution line separating the lek from the project area, there would be a minor increase in the risk of lek abandonment as a result of the Proposed Action.

The SMPs in the PEIS that describe management efforts for the conservation of sagebrush habitat would also help reduce impacts to sage-grouse during operation. Also, measures identified as part of the Proposed Action (see Section 2.1.4) and mitigation measures described in Chapter 6 of this EA would reduce impacts to sage-grouse, in particular those that would result from turbine placement.

4.3.2.5 BIRDS OF PREY

Anticipated impacts to special-status birds of prey resulting from implementation of the Proposed Action would be similar to those impacts to birds of prey and vultures described in the wildlife section (4.2.2.6). However, because of their generally low numbers and protected status, impacts would have an increased intensity.

4.3.2.5.1 Construction

Turbines located within 0.5 mile of known raptor nests and would increase the potential for temporary displacement during the 9- to 12-month construction phase, if a breeding pair attempts to use one of these nests.

4.3.2.5.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. In general, impacts from the routine operation and maintenance of the SVWEF would be the same as those described in the wildlife birds of prey and vultures section (4.2.2.6). Because of their low representation during project area surveys both in the project area and through the RSA, injury or mortality of golden and bald eagles is expected to be a rare occurrence at the SVWEF.

Prairie falcons, northern harriers, and western burrowing owls were all observed in the project area, and injury or mortality from collisions with WTGs, towers, and transmission lines is expected to occur. Because of their more frequent representation during project area surveys, observation of their presence in the RSA, and nearby nests, occurrences of injury or mortality of ferruginous hawks and Swainson’s hawks, in particular juveniles of these species, from collisions with WTGs, towers, and transmission lines are expected to occur and to be more frequent than the other special-status birds of prey. Although not observed on surveys, the peregrine falcon has been recorded in Spring Valley and would be expected to be a rare visitor to the area, and injury or mortality from collisions with WTGs, towers, and transmission lines may be expected to occur.

To address impacts to special-status raptors, the ABPP (see Appendix F) provides measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including special-status birds of prey mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to special-status birds of prey. With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for birds, specifically when high avian activity is coupled with low visibility (see Appendix F:5–7). Although injury or mortality of individual special-status birds of prey is expected to occur as a result of the presence of WTGs, towers, and transmission line, species-specific mortality thresholds for special-status birds of prey have been developed in the ABPP (see Appendix F) to address the higher potential for population impacts to those species. Phased mitigation has not been proposed for specific species because it is currently unknown whether or which species would exceed mortality thresholds. Therefore, if species-specific thresholds are exceeded, the TAC would determine what mitigation, if any, should be recommended for implementation, and the BLM Authorized Officer would approve the measure if determined appropriate. Mitigation may include development of a phased approach for the species similar to the mitigation approach for general birds and bats. Implementation of the ABPP (see Appendix F) would address the risk that increased injury or mortality would result in local or regional population-level changes.

4.3.2.6 BATS

Impacts from the routine operation and maintenance of the SVWEF would be similar to those described in the wildlife bats section (4.2.2.7). However, because of their protected status, impacts would have a greater intensity.

4.3.2.6.1 Construction

All construction impacts to special-status bat species would be the same as described for bats in section 4.2.2.7.

4.3.2.6.2 Operation and Maintenance

Collision with turbines, towers, and transmission lines. Pallid bat and Townsend's big-eared bat forage in and among vegetation (Bradley et al. 2006), indicating that they may spend less time in the RSA relative to other special-status bat species. Additionally, neither species has been a previously reported mortality at other wind energy facilities (Arnett et al. 2008; BLM 2005). Injury or mortality from barotraumas or collisions with WTGs, towers, and transmission lines is expected to be an infrequent occurrence for both species.

Brazilian free-tailed bats are the most common migratory special-status bat species observed in the project area. Previous research indicates that migratory bat species are most susceptible to mortality resulting from turbine collisions and/or barotrauma (Arnett et al. 2009; Baerwald 2009) and that mortality rates of these species are generally highest during the fall migration (Arnett et al. 2008; Baerwald 2009). Injury or mortality of Brazilian free-tailed bats from turbine collisions and barotrauma is expected to occur during the fall migration period. Curtailment of turbines during peak activity of Brazilian free-tailed bats as described in the ABPP is anticipated to reduce the risk of injury or mortality from barotrauma or collision with WTGs. The BLM would implement cut-in speed curtailment for up to 744 hours per year (i.e., the equivalent of 62 days per year, 12 hours per day). Additional adjustments to seasonal and daily timing may be made based on mortality data, radar, and AnaBat data. Altering turbine cut-in speed has been shown to dramatically reduce impacts (50%–87%) to other bat species at wind energy facilities (Arnett et al. 2009; Baerwald 2009).

Western red bats have been shown to be adversely impacted at wind energy facilities (Arnett et al. 2008; BLM 2005). As a result of the low activity of this species observed in the project area, injury or mortality from barotrauma or collisions with WTGs, towers, and transmission lines is expected to be a rare occurrence. Additionally, the turbine cut-in speed changes during peak Brazilian free-tailed bat periods provide de facto mitigation for the western red bat, as impacts to migratory tree-roosting bat are greatest in the fall (Arnett et al. 2008; BLM 2005), the same period when the turbine cut-in experiment would occur.

To further address impacts to special-status bats, the ABPP (see Appendix F) provides additional measures to adaptively manage impacts as they are determined through monitoring. Under the plan, a TAC would monitor SVWEF activities, including special-status bat species specific mortality data, to determine the need for project mitigations. The TAC would make recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, and/or minimize impacts to special-status bats. With the necessary data collected, the radar systems installed for the project would be used to trigger turbine shutdowns during high-risk periods for bats, specifically when high bat activity is observed at Rose Guano Bat Cave (see Appendix F:5–7). Other shutdown times may be used as phase mitigation allows (see Appendix F:16–20). Although injury or mortality of individual special-status bats is expected to occur as a result of the presence of WTGs, towers, and transmission line, species-specific mortality thresholds for special-status bats have been developed in the

ABPP (see Appendix F) to reduce the higher potential for population-level impacts to those species and would address the risk that increased injury or mortality would result in local or regional population-level changes. Species-specific mortality thresholds identified in the plan would be used to identify trends in mortality of special-status bat species and trigger action by the TAC. Phased mitigation has not been proposed for specific species because it is currently unknown whether or which species would exceed mortality thresholds. Therefore, if species-specific thresholds are exceeded, the TAC would determine what mitigation, if any, should be recommended for implementation, and the BLM Authorized Officer would approve the measure if determined appropriate. Mitigation may include development of a phased approach for the species similar to the mitigation approach for general birds and bats. Preconstruction survey data would be used to identify seasonal activity patterns for special-status bat species (SWCA 2009a), which may then be used to determine the ideal time for implementing operational mitigation measures to target individual special-status species.

Interference with behavioral activities. The Rose Guano Cave ACEC is located approximately 4 miles northeast of the nearest proposed WTG in the project area. Rose Guano Cave is known as a roosting location for Brazilian free-tailed bats during the fall migration (Sherwin 2009). The PEIS states that migrating bats are “expected to simply fly around individual structures or around or over the facility site and continue their migratory movement” (BLM 2005). Consistent with the PEIS, the introduction of WTGs associated with the SVWEF may result in individual bat mortality; however, the large-scale migration movement of this population of Brazilian free-tailed bats would not change. Installation of an infrared beam bat detection system at the cave portal would result in long-term disturbance. The installation would include drilling 12 sensors into the perimeter of the cave portal. Installation would be completed outside the season when Brazilian free-tailed bats use Rose Guano Cave and would not impact their ingress or egress. Therefore, installation would have no measurable effect.

4.3.2.7 VEGETATION

Impacts to Parish phacelia would be consistent with vegetation impacts described in Sections 5.9.2.1 and 5.9.3.1 of the PEIS. The Proposed Action avoids areas of suitable habitat for Parish phacelia and no direct impacts to Parish phacelia would occur.

4.3.3 Alternate Development Alternative

4.3.3.1 SMALL MAMMALS

4.3.3.1.1 Construction

Impacts to pygmy rabbit from construction of the Alternate Development Alternative would be similar to those described under the Proposed Action. Under the Alternate Development Alternative, all mapped high-quality pygmy rabbit habitat would be avoided. As a result of the avoidance, there would be no direct loss of occupied or high-quality pygmy rabbit habitat. Construction activities would result in the long-term removal of 39.4 acres (1.1%) of potential pygmy rabbit habitat and short-term disturbance of 139.2 acres (4.0%) potential pygmy rabbit habitat as described under the Proposed Action. Reclamation of the short-term disturbance acreage would occur as described under the Proposed Action, but because of the specific habitat requirements of pygmy rabbits, this would remain a long-term loss of 4.0% of the potential habitat in the project area.

4.3.3.1.2 Operation and Maintenance

Impacts to small mammals from the operation and maintenance of the SVWEF under the Alternate Development Alternative are expected to be the same as those identified under the Proposed Action.

4.3.3.2 WATERFOWL AND SHOREBIRDS

4.3.3.2.1 Construction

Construction-related impacts to long-billed curlew, sandhill crane, and willet resulting from implementation of the Proposed Action would be similar to those impacts to waterfowl and shorebirds described in the wildlife section (4.2.2.4). Because no construction would occur within 0.5 mile of open water sources in the project area, the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.3.3.2.2 Operation and Maintenance

Impacts to special-status waterfowl and shorebirds from the operation and maintenance of the SVWEF under the Alternate Development Alternative would be similar to those identified under the Proposed Action. Under the Alternate Development Alternative, a 0.5-mile avoidance buffer around open water sources was established and no WTGs or infrastructure would be constructed within that buffer. By avoiding open water sources, the risk of injury or mortality from collisions of special-status waterfowl and shorebirds with WTGs are expected to be lower under the Alternate Development Alternative.

4.3.3.3 SONGBIRDS

4.3.3.3.1 Construction

Many of the impacts to special-status songbirds from construction of the Alternate Development Alternative would be same as those described for the Proposed Action. However, because open water sources would be avoided by at least 0.5 mile and many songbirds aggregate new open water, the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.3.3.3.2 Operation and Maintenance

Impacts to special-status songbirds from the operation and maintenance of the SVWEF under the Alternate Development Alternative are expected to be similar to those identified under the Proposed Action. However, impacts from collisions of songbirds with WTGs are expected to be reduced under the Alternate Development Alternative because WTGs would be placed farther away from wetland areas where songbirds are more abundant. As discussed under the Proposed Action, songbird density would be reduced within 80 m of a WTG, which would affect 372.62 acres of habitat. This equates to a reduction in habitat quality for 0.1 % of general songbird habitat in Spring Valley.

4.3.3.4 GALLINACEOUS BIRDS

4.3.3.4.1 Construction

Many of the impacts to greater sage-grouse from construction of the Alternate Development Alternative would be same as those described for the Proposed Action. However, impacts would be reduced because WTGs would be located further from active leks under the Alternate Development Alternative.

4.3.3.4.2 Operation and Maintenance

Impacts to greater sage-grouse during operation and maintenance of the SVWEF under the Alternate Development Alternative are expected to be similar to those identified under the Proposed Action. However, impacts would be reduced because WTGs would be located further from active leks under the Alternate Development Alternative.

4.3.3.5 BIRDS OF PREY

4.3.3.5.1 Construction

Many of the impacts to special-status birds of prey from construction of the Alternate Development Alternative would be same as those described under the Proposed Action. Because raptor nests and open water sources would be avoided by at least 0.5 mile, the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.3.3.5.2 Operation and Maintenance

Impacts to special-status birds of prey during operation and maintenance of the SVWEF under the Alternate Development Alternative would be similar to those identified under the Proposed Action and in the wildlife section, birds of prey and vultures. WTGs would not be located within 0.5 mile of active raptor nests or surface waters. This would reduce the risk of injury or mortality of raptors from collision with WTGs. Although injury or mortality of individual raptors is still anticipated to occur under the Alternate Development Alternative, WTG placement away from nests, nest surveys and associated mitigation, and implementation of the ABPP would further reduce the risk that increased injury or mortality would result in population-level changes to the raptor species in the region.

4.3.3.6 BATS

4.3.3.6.1 Construction

Because open water sources would be avoided by at least 0.5 mile and bat activity is generally concentrated near open water (SWCA 2009a), the intensity of both direct and indirect impacts described under the Proposed Action would be reduced.

4.3.3.6.2 Operation and Maintenance

The Alternate Development Alternative would modify wind turbine arrangement in order to buffer water resources by at least 0.5 mile. Because bat activity is known to be higher near water resources (SWCA 2009a), the risks of injury or mortality of special-status bats from collisions or barotraumas during foraging activities would be reduced from those described under the Proposed Action. Although injury or mortality of individual special-status bats is still expected to occur under the Alternate Development Alternative, WTG site selection, and implementation of the ABPP would reduce the risk that increased injury or mortality would result in population-level changes to bat species in the region.

4.3.3.7 VEGETATION

4.3.3.7.1 Construction

Construction impacts to Parish phacelia resulting from development of the Alternate Development Alternative would generally be the same as those described under the Proposed Action in Section 4.3.2.7. However, the Alternate Development Alternative would buffer spring locations by at least 0.5 mile. Therefore, potential habitat for Parish phacelia would be buffered by a greater distance, further reducing the potential for indirect impacts.

4.3.3.7.2 Operation and Maintenance

Operation and maintenance impacts to Parish phacelia resulting from development of the Alternate Development Alternative would generally be the same as those described under the Proposed Action in

Section 4.3.2.7. However, the Alternate Development Alternative would buffer spring locations by at least 0.5 mile. Therefore, potential habitat for Parish phacelia would be buffered by a greater distance, further reducing the potential for indirect impacts.

4.3.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied and current land uses would continue. Under the No-Action Alternative, special-status wildlife species that are currently in the project area would continue to use the habitat. The infrequent disturbances that result from current land uses would continue under the No-Action Alternative. The impacts to special-status wildlife species from those disturbances would continue to affect individuals, but local and regional populations would remain unaffected.

4.4 Grazing

4.4.1 Programmatic Environmental Impact Statement Impacts

Although the types of changes to grazing that may result from the construction and operation of a typical wind energy facility are not specifically described in the PEIS, Sections 5.9.2.1 and 5.9.2.2 of the PEIS (BLM 2005) identify the types of impacts that may affect vegetation and wildlife resources. Additionally, Section 5.10.1 of the PEIS states that wind energy is generally compatible with other land uses, including grazing. Because this EA tiers to the PEIS analysis, a brief summary of those impacts to that are relevant to the Proposed Action and alternative action is presented below. A summary of the related mitigation measures for grazing that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.4.1.1 CONSTRUCTION

The following impacts described for vegetation and wildlife resources are assumed to be applicable to grazing resources and include injury or mortality to vegetation, increased fugitive dust, exposure (of livestock) to contaminants, introduction of invasive vegetation, habitat reduction, alteration, or fragmentation, injury or mortality of wildlife (livestock), decrease in water quality from erosion and runoff, noise, and interference with behavioral activities.

4.4.1.2 OPERATION AND MAINTENANCE

The following impacts described for vegetation and wildlife resources are assumed to be applicable to grazing resources and would occur as a result of site maintenance activities involving mowing and herbicide use and accidental releases of pesticides, fuels, or hazardous materials.

Indirect impacts resulting from public use of newly developed roads may also affect grazing through direct injury to vegetation, legal and illegal take of plants, introduction of invasive vegetation, and increased potential for fire.

4.4.2 Proposed Action

4.4.2.1 CONSTRUCTION

Construction activities would result in the short-term disturbance of 76.5 acres within the Majors Allotment, reducing acres available for grazing in the allotment by 0.08%. Construction activities would result in the short-term disturbance of 260.4 acres within the Bastian Creek Allotment, reducing acres available for grazing in the allotment by 1.9%. The area impacted in the Bastian Creek Allotment would include 427.9 acres located within the Bastian Creek treatment area. There would be no reduction in AUMs as a result of the Proposed Action. Livestock would be kept off the temporary disturbance areas during the restoration period by the additional fencing. Although construction activities are expected to last 9 to 12 months, it could take up to 10 years before temporary disturbance areas are successfully reclaimed (see Appendix A). Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community, which could result in the diminished quality of available forage.

Construction activities would result in the long-term removal of 111.5 acres available for grazing, necessary for the wind turbine pads, the O&M building, access road footprints, and associated infrastructure. These losses would include 19.4 acres within the Majors Allotment, reducing available forage by 0.02%. A total of 91.7 acres within the Bastian Creek Allotment would be removed, reducing the available forage by 0.68% within the Bastian Creek Allotment, 8.6 acres of which occur in the Bastian Creek treatment area. This loss of acres available for grazing would occur for the duration of the 30-year SVWEF and the subsequent 10 years anticipated for successful decommissioning and reclamation. There would be no loss of AUMs as a result of the Proposed Action. Table 4.4-1 summarizes the impacts to these grazing allotments.

Table 4.4-1. Grazing Impacts

Allotment	Short-Term Acreage Lost (% of allotment lost)	Long-Term Acreage Loss
Bastian Creek	260.4 (1.9%)	91.7 (0.68%)
Majors	76.5 (0.08%)	19.4 (0.02%)

The Proposed Action would result in reduced forage quality from the spread of existing invasive vegetation and the introduction of new species of invasive vegetation. Invasive vegetation degrades quality forage in several ways. Weeds outcompete most native plants and can lead to a homogeneous vegetative landscape. Weedy habitats often contain fewer highly nutritious forage species for grazers. The potential for invasive vegetation that is currently occurring in Spring Valley to spread, and for new invasive species to be introduced, would be highest along the linear features of Proposed Action, the roads, and collection system. Additionally, within the Bastian Creek allotment, an existing treatment area would be more vulnerable, as this area has been recently disturbed. Reclamation of temporarily impacted areas would occur at the completion of the project and would be effective at reducing the establishment of noxious and invasive plant species.

Measures for reducing the spread and establishment of noxious and invasive weeds are included as part of the Restoration and Weed Management Plan in Appendix A. Implementation of measures identified in the plan would reduce the risk of spreading invasive vegetation currently occurring in Spring Valley, as well as reducing the risk of introducing new invasive species from locations with known invasive vegetation problems.

4.4.2.2 OPERATION AND MAINTENANCE

Operation and maintenance activities under the Proposed Action would result in increased ambient noise levels and increased human presence within the project area. The increased noise from the operation of WTGs may lead to intermittent disruptions in the behavior of cattle and sheep when wind levels are highest.

Because of the low amounts of human activity throughout the project area during the long-term operation of the SVWEF, cattle and sheep are expected to use available forage within and adjacent to the project area following construction and restoration.

4.4.3 Alternate Development Alternative

The effects of the Alternate Development Alternative on grazing would be similar in nature to those described under the Proposed Action. The Alternate Development Alternative includes the same facilities and the same number of WTGs and follows the same construction methods and timeline. However, the project area is reduced in size to 7,673 acres, and the 75 WTG locations are different from the Proposed Action. In addition, there would be fewer short-term and long-term surface disturbances associated with the roads and collection system of the Alternate Development Alternative. The following sections describe only the exceptions to impacts described under the Proposed Action.

4.4.3.1 CONSTRUCTION

Construction activities would result in the short-term disturbance of 77.5 acres of available forage within the Majors Allotment, reducing acres available for grazing in the allotment by 0.08%. Construction activities would result in the short-term disturbance of 248.0 acres available for grazing within the Bastian Creek Allotment, reducing available forage in the project area by 1.8%. The area impacted in the Bastian Creek Allotment would include 28.3 acres located within the Bastian Creek treatment area.

Construction activities would result in the long-term removal of 104.7 acres of acres available for grazing for the wind turbine pads, the O&M building, access road footprints, and associated infrastructure. These losses would include 18.2 acres within the Majors Allotment, reducing acres available for grazing by 0.02%. A total of 86.5 acres within the Bastian Creek Allotment would be removed reducing acres available for grazing by 0.64% within the allotment, 6.6 acres of which occur in the Bastian Creek treatment area. Impacts are summarized below in Table 4.4-2.

4.4.3.2 OPERATION AND MAINTENANCE

Because the operation and maintenance activities associated with the Alternate Development Alternative would be the same as described under the Proposed Action, the direct long-term impacts to grazing as a result of implementation of the Alternate Development Alternative would be the same as those described for the Proposed Action.

Table 4.4-2. Grazing Impacts

Allotment	Short-term Acreage Lost (% of allotment lost)	Long-term Acreage Loss (% of allotment lost)
Bastian Creek	248.0 (1.8%)	86.5 (0.64%)
Majors	77.5 (0.08%)	18.2 (0.02%)

4.4.4 No-Action Alternative

Under the No-Action Alternative, the two allotments would continue to be grazed in accordance with the *Fundamentals of Rangeland Health and Standards and Guidelines for Grazing for Nevada's Northeastern Great Basin Area* (43 CFR 4180, Appendix C:Northeastern RAC Standards and Guidelines). Grazing uses would continue under current conditions, and there would be no change in AUMs.

4.5 Water Resources

This section discusses impacts to water resources from the construction and operation of the SVWEF Proposed Action and alternatives. The analysis area includes both surface and groundwater resources within and surrounding the project area that could be altered by the Proposed Action and alternatives. Impacts to water resources would be determined by changes in water use, water quality, surface water flow patterns, and/or the nature of groundwater/surface water interaction within the project area.

4.5.1 Programmatic Environmental Impact Statement Impacts Summary

The types of change to water resources that may result from the construction and operation of a typical wind energy facility are described in Section 5.3 of the PEIS. Typically wind energy facilities do not require the use of much water, except during the construction phase. Construction uses of water occur in the short term. Operational water uses are generally minimal. Because this EA tiers to the PEIS analysis, a brief summary of those impacts to water resources that are relevant to the SVWEF are presented below. A summary of the related mitigation measures for water resources that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.5.1.1 SURFACE WATER

4.5.1.1.1 Construction

The majority of impacts to surface water resources from a typical wind energy facility would occur during the construction phase. Construction activities associated with a typical wind energy facility would result in increased soil erosion, which could alter surface runoff patterns. Construction of wind facilities and access roads would result in increased ground disturbance, traffic levels, and accelerated weathering of soils, which may result in changes to water quality.

4.5.1.1.2 Operation and Maintenance

Impacts to water resources associated with operation and maintenance of a typical wind energy facility are identified in Section 5.3.3 of the PEIS and include degradation of water quality as a result of improper pesticide use or increased vehicle traffic.

4.5.1.2 GROUNDWATER

4.5.1.2.1 Construction

Short-term increases in water use would result from water application for dust control during construction of access roads, clearing of vegetation, grading, and road traffic; water for concrete used in the foundations of turbine towers and associated buildings; and water used by construction personnel. These construction water needs typical of a wind energy facility may result in having to deliver water from an off-site location, or extract water from nearby groundwater wells or surface water features.

In areas where a confined aquifer is present as a result of a hydrologic barrier, unwanted dewatering or recharge may occur as a result of excavation activities or withdrawal of groundwater. This may also impact water quality of downgradient resources.

4.5.1.2.2 Operation and Maintenance

Once the construction phase is completed, the environment is assumed to establish a new equilibrium. The potential impacts to groundwater during operations of a typical wind energy facility would be the same as those to surface water (Section 5.3.3 of the PEIS).

4.5.2 Proposed Action

4.5.2.1 SURFACE WATER

4.5.2.1.1 Construction

Under the Proposed Action, changes to water quality would result from the increased erosion associated with ground-disturbing activities, increased traffic from construction activities, and operation of heavy machinery. WTGs and related infrastructure occur within approximately 300 feet of spring and wetland areas. Construction near these areas could lead to increased surface runoff entering those areas. Because the slope throughout the project area is less than 10%, the risk of increased erosion is minimal. In addition, all temporary disturbances from construction activities would be restored to natural contours and reseeded with a BLM-approved seed mix. Increased erosion resulting from construction activities would occur during the 9- to 12-month construction period and would slowly diminish over the time required for restoration to be completed (up to 10 years).

Changes to surface water flows would result from construction of access roads and excavation activities. Construction activities would not cross Spring Creek or Cooper Canyon Wash. Additionally, access roads are located to minimize crossings of any remaining ephemeral washes, and avoid drainage bottoms and wetlands. All structures shall be located and constructed so that they do not decrease channel stability or increase water velocity. Additionally, implementation of the project SWPPP and SPP (see Appendix D), as well as BMPs for the Proposed Action (see Section 2.1.4) regarding runoff and sediment control, would further reduce impacts to surface water.

4.5.2.1.2 Operation and Maintenance

Under the Proposed Action, changes in water quality and erosion would result from surface water runoff during dust control for road maintenance. Water would be used as necessary during operations for road maintenance. Additionally, there would be an increase in impermeable surfaces within the project area from turbine pads, roads, substation, and the O&M facility that would result in increased surface runoff. Impermeable surfaces under the Proposed Action would be less than 10% of the project area (i.e., project footprint) and would be widely dispersed throughout the project area. As a result, there would be no measurable change in erosion potential and water quality in the project area. The application of mitigation measures and the project SWPPP and SPP (see Appendix D) would further reduce these impacts.

4.5.2.2 GROUNDWATER

4.5.2.2.1 Construction

Water use would be at its maximum during the construction phase of the project. The quantity of water assumed necessary during the construction phase would vary from approximately 5 million gallons (15.3acre-feet) under normal conditions to approximately 10 million gallons (30.7 acre-feet) under conditions of excessive drought. All necessary water for the Proposed Action would be obtained through a temporary lease with an existing water rights holder at the Cleveland Ranch in Spring Valley north of the project area. The water would be taken from an irrigation water storage impoundment, with an existing well as a supplemental source. The water use during the 9- to 12-month construction phase would displace agricultural use and there would be no increase in water diversion from the basin. During initial geotechnical investigations conducted on the site, groundwater was encountered at a minimum of 14.5 feet but more often at a range of 18 to 40 feet (Kleinfelder 2010). Because turbine foundations would only be at a depth of approximately 8 feet, it is unlikely that the hydrology of the site would be adversely affected. Additionally, site-specific geotechnical analysis would occur at each proposed turbine location prior to any construction activities, and specific measures would be developed as needed to address geotechnical issues. If the perching groundwater layer, as identified by the on-site geologist or geotechnical engineer or engineer's representative is breached, the hole or breach point would be seal grouted to preserve the subsurface hydrology that feeds the local system.

4.5.2.2.2 Operation and Maintenance

No impacts to groundwater resources are anticipated to result from operation of the proposed wind facility. Water use during the operations phase would be limited to a minimal amount of water for dust control as a component of access road maintenance and potable water at the O&M facility.

4.5.3 Alternate Development Alternative

4.5.3.1 SURFACE WATER

4.5.3.1.1 Construction

Under the Alternate Development Alternative, changes to water quality and surface water flows from construction activities would occur, but would be less than those described under the Proposed Action. All springs, wetlands, or other perennial water features would be avoided during construction activities. Additionally, turbines and roads would be placed at least 0.5 mile away from open water sources, including springs and wetlands. The application of the project SWPPP and SPP (see Appendix D) would further reduce impacts to surface water.

4.5.3.1.2 Operation and Maintenance

Impacts to surface water under the Alternate Development Alternative would be similar to those described under the Proposed Action. Surface runoff from water use during road maintenance would occur as described under the Proposed Action. The amount of impermeable surfaces that would occur under the Alternate Development Alternative would be similar to the Proposed Action and would not exceed 10% of the project area. As a result, there would be no measurable change in erosion potential and water quality in the project area. The application of mitigation measures and the project SWPPP and SPP (see Appendix D) would further reduce these impacts.

4.5.3.2 GROUNDWATER

4.5.3.2.1 Construction

Under the Alternate Development Alternative, water use, amounts, and source would be the same as those described under the Proposed Action. Impacts to groundwater under the Alternate Development Alternative would be the same as those described under the Proposed Action.

4.5.3.2.2 Operation and Maintenance

Under the Alternate Development Alternative, no impacts to groundwater resources are anticipated to result from operation of the proposed wind facility. Water use during the operations phase would be the same as described under the Proposed Action.

4.5.4 No-Action Alternative

Under the No-Action Alternative, the BLM would not issue a ROW grant for the construction and operation of WTG facilities in the project area. Impacts to surface water and groundwater resources in the project area would be subject to existing conditions and trends.

4.6 Cultural Resources

Impacts to cultural resources eligible for the NRHP must be considered under Section 106 of the NHPA. The BLM is required to identify any cultural resources in the project area, evaluate their eligibility status for the NRHP, and consult with the SHPO. If the resources are NRHP eligible, the BLM must then assess whether or not the undertaking would have an adverse effect on those resources, and if necessary, mitigate any adverse effects on those resources.

The following analysis assumes that all ground-disturbing activities would be confined to the areas of disturbance identified in Chapter 2 under the Proposed Action and Alternate Development Alternative. For the purposes of this analysis, there is no difference between short-term and long-term disturbance. All cultural resource eligible for NRHP located within the project area would be avoided.

4.6.1 Programmatic Environmental Impact Statement Impacts Summary

The types of impacts to cultural resources that may result from the construction and operation of a typical wind energy facility are described in Section 5.12 of the PEIS. Because this EA tiers to the PEIS, a brief summary of those impacts to cultural resources that are relevant to the Proposed Action is presented below. A summary of the related mitigation measures for cultural resources that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.6.1.1 CONSTRUCTION

Potential impacts to cultural resources from a typical wind energy facility are described in Section 5.12.2 of the PEIS. The impacts to cultural resources associated with construction of wind energy facilities would occur from both direct and indirect disturbances. The PEIS states that the amount of area disturbed could be considerable. Direct impacts to cultural resources include ground-disturbing activities related to construction. Indirect impacts may include soil erosion, both inside and adjacent to the impact footprint. Erosion causes impacts to archaeological sites by washing away either parts or all of a site, which creates a loss of scientific information that the site contains. Other indirect impacts include increased access to the area, which could result in looting, vandalism, and inadvertent destruction of cultural resources.

4.6.1.2 OPERATION AND MAINTENANCE

Potential impacts to cultural resources from operation of a typical wind energy facility are described in Section 5.12.3 of the PEIS. The impacts to cultural resources associated with operation and maintenance of wind energy facilities would be fewer than during construction. Ground-disturbing activities would be minimal and therefore cause less of an impact. Increased access provided by roads for maintenance would cause long-term impacts. Potential increased impacts include the likelihood of unauthorized collection of artifacts and vandalism and possible inadvertent destruction of unrecognized resources as a result of OHV activity.

4.6.2 Proposed Action

4.6.2.1 CONSTRUCTION

A Class III intensive cultural resource inventory was conducted on all possible ground-disturbing portions of this project. All known cultural resource sites eligible for the NRHP would be avoided. Cultural resource monitors would be present during all new ground-disturbing activities conducted during construction, operation and maintenance during the life of the project.

There is the potential for cultural resources not identified during the Class III inventory to occur below the surface within the project area. Therefore, damage and loss of cultural resources not identified during the Class III inventory may occur as a result of ground-disturbing activities such as clearing, grading, and excavation, as well as heavy equipment and vehicle movement within the project area. However, cultural resource monitors would be present during all new ground-disturbing activities based on the Monitoring and Discovery Plan (see Appendix E) and would reduce the risk of impact to currently unidentified sites. If any discoveries are made as a result of the ground-disturbing activities, work would stop immediately and the BLM cultural resource specialist assigned to the project would be notified. The BLM would then take the appropriate action regarding the discovery.

The increased presence of workers in the project area could result in an increased risk of looting, vandalism, and inadvertent destruction throughout the 9- to 12-month construction period. The monitor required by the Monitoring and Discovery Plan (see Appendix E) would deter any unauthorized personnel from collecting artifacts during the construction phase further reducing the risk of damage to cultural resources (Seymour and Villagran 2010). Additionally, on-site staff would be given a worker education training course that would provide them information on cultural resources, laws and regulations, and results of breaking those laws, which would further reduce potential for unauthorized collection, vandalism, and destruction (Seymour and Villagran 2010).

4.6.2.2 OPERATION AND MAINTENANCE

A Class III intensive cultural resource inventory was conducted on all possible ground-disturbing portions of this project. All known cultural resource sites eligible for the NRHP would be avoided. Cultural resource monitors would be present during all new ground-disturbing activities conducted during construction, operation, and maintenance during the life of the project.

If any discoveries are made as a result of the ground-disturbing activities, work would stop immediately and the BLM cultural resource specialist assigned to the project would be notified. The BLM would then take the appropriate action regarding the discovery.

There would be an indirect visual impact to up to five eligible historic structures. Prior to construction, any eligible site that would be visually impacted would be recorded based on SHPO documentation standards (SHPO 2010). Those standards include specific photo documentation and detailed recordation. Documentation to SHPO standards would mitigate impacts by recording the information about their historical character before it is impacted. Therefore, while there would be a visual impact to historic structures, mitigation would reduce that impact by keeping a record of the setting prior to project construction so that information is not lost.

Unauthorized collection of artifacts, vandalism, and destruction of sites could occur from increased human presence by site workers. However, the project uses existing roads as possible, and new roads were designed to avoid known cultural resources; therefore, an increased risk of damage to cultural resources from increased human presence is unlikely.

4.6.3 Alternate Development Alternative

4.6.3.1 CONSTRUCTION

Construction-related impacts from the Alternate Development Alternative would be similar to those described under the Proposed Action. However, impacts would be somewhat fewer because of the smaller project area (7,673 acres); therefore, there would be less potential to disrupt sites.

4.6.3.2 OPERATION AND MAINTENANCE

O&M-related impacts from the Alternate Development Alternative would be similar to those described under the Proposed Action. However, impacts would be somewhat fewer because of the smaller project boundary (7,673 acres); therefore, there would be less potential to disrupt sites.

4.6.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied. Selection of the No-Action Alternative would not result in new impacts to cultural resources. The cultural resources would remain in place as they currently are. There would be no direct impacts from construction and maintenance or indirect impacts because of increased visitation of construction and maintenance workers.

4.7 Native American Religious Concerns

A project may adversely affect a historic property if it alters the characteristics that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property. “Integrity” is the ability of a property to convey its significance, based on its location, design, setting, materials, workmanship, feeling, and association. Adverse effects can be direct or indirect. They include reasonably foreseeable impacts that may occur later in time, be farther removed in distance, or be cumulative. Examples of adverse effects include

- physical destruction or damage;
- alteration inconsistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties;
- relocation of the property;
- change in the character of the property’s use or setting;
- introduction of incompatible visual, atmospheric, or audible elements;
- neglect and deterioration; and
- transfer, lease, or sale out of federal control without adequate preservation restrictions.

4.7.1 Programmatic Environmental Impact Statement Impacts Summary

The types of impacts to Native American Religious Concerns that may result from the construction and operation of a typical wind energy facility are described in Section 5.12 of the PEIS. Because this EA tiers to the PEIS, a brief summary of those impacts to Native American Religious Concerns that are relevant to the Proposed Action is presented below. A summary of the related mitigation measures for Native American Religious Concerns that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.7.1.1 CONSTRUCTION

Potential impacts to Native American Concerns from a typical wind energy facility are described in Section 5.12.2 of the PEIS. The impacts to interests of Native Americans associated with construction of wind energy facilities would occur from both direct and indirect disturbances. The PEIS states that the amount of area disturbed could be considerable. Direct effects on areas of interest to Native Americans might include damage an area that is considered sacred or may have been, or continue to be, used for harvesting traditional resources, such as medicinal plants. Indirect effects may include soil erosion, both inside and adjacent to the impact footprint. Increased access to the area could also provide adverse impacts caused by looting, vandalism, and inadvertent destruction. Visual impacts to areas of interest to Native Americans can be direct or indirect. Construction equipment may degrade the visual significance or the area.

4.7.1.2 OPERATION AND MAINTENANCE

Potential impacts to Native American concerns from a typical wind energy facility are described in Section 5.12.3 of the PEIS. Direct effects on areas of interest to Native Americans might include damage an area that is considered sacred or may have been, or continue to be, used for harvesting traditional resources, such as medicinal plants. Visual impacts to areas of interest to Native Americans can be direct or indirect. Maintenance equipment and wind energy infrastructure may degrade the visual significance or the area.

4.7.2 Proposed Action

4.7.2.1 CONSTRUCTION

The impacts to interests of Native Americans associated with construction of the SVWEF would occur from both the removal of vegetation and the presence and operation of construction equipment. Direct disturbances may include the loss of traditional plant collecting areas and loss of previously undiscovered cultural resources. Visual contrasts from the presence of construction equipment would have a direct impact to the historic setting of the Swamp Cedar ACEC, an area of concern to the Native Americans. Additionally, noise from construction activities may also intermittently degrade the historic setting of the ACEC. Construction activities associated with the SVWEF would introduce visual and aural contrasts to existing conditions along the western edge of the ACEC, which would diminish the historic setting of the ACEC and the associated plant collecting, fandango, and massacre sites.

4.7.2.2 OPERATION AND MAINTENANCE

Operation and maintenance of the SVWEF would result in increased visitation to areas of interest to Native Americans. If public use of the project area increases, which is not anticipated, this would likely increase the unauthorized collection of artifacts, vandalism, and destruction of sites from OHV use and other inadvertent means. Visual contrasts from the presence of WTGs, and maintenance equipment to areas of interest to Native Americans would have a direct impact to the physical setting of the Swamp Cedar ACEC, an area of concern to Native Americans. Additionally, noise from the WTGs may also intermittently result in contrasts to the natural soundscape of the ACEC. The visual and aural contrasts that would result from the operation and maintenance of the SVWEF along the western edge of the ACEC would diminish the historic setting of the fandango and massacre sites.

4.7.3 Alternate Development Alternative

4.7.3.1 CONSTRUCTION

Adverse impacts to Native American interest resulting from construction of the Alternate Development Alternative would be similar to those described in the Proposed Action.

Visual contrasts from the presence and operation of construction equipment to areas of interest to Native Americans would have a direct impact to the Swamp Cedar ACEC, an area of concern to the Native Americans. The impact of construction equipment would be for the duration of the construction phase of the project and would vary, depending on the amount of equipment and numbers of construction personnel on the project at any given time. Through tribal consultation, WTGs and the associated construction areas were located to reduce those contrasts and reduce impacts to Native American religious concerns.

4.7.3.2 OPERATION AND MAINTENANCE

Adverse impacts to Native American interest resulting from development of the Alternate Development Alternative would generally be the same as those described under the Proposed Action. Visual contrasts of WTGs and associated facilities to areas of interest to Native Americans would have a direct impact to the Swamp Cedar ACEC, an area of concern to the Native Americans. The visual contrast from the presence of WTGs and associated infrastructure would affect the historic setting of the Swamp Cedar ACEC for the life of the project. However, through tribal consultation, WTGs were located to reduce those contrasts and reduce impacts to Native American religious concerns.

4.7.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied. The current setting of the area of analysis is characterized by wide-open valley floors covered in grasses and shrubs, interspersed with juniper trees surrounded by high, rugged, parallel mountain ranges. Existing human modifications in the project area to the historic setting are limited to dirt surface tracks and roads, transmission lines, fences, and other ranch structures. Under the No-Action Alternative, the historic setting of the Swamp Cedar ACEC would continue to be influenced by these factors. Selection of the No-Action Alternative would not result in any new impacts to Native American interests.

4.8 Visual Resources

The impacts analysis for visual resources is an assessment of landscape changes that would result from the construction and operation of the wind energy facility under the Proposed Action. As discussed above, visual resources (the landscape) consist of landform (topography and soils), vegetation, and human-made structures (roads, buildings, utilities, and modifications of the land, vegetation, and water). Because changes to the characteristic landscape would be the primary direct impact of the wind facility to visual resources, the relative impacts to the characteristic landscape were assessed by comparing visual contrasts that would result from the construction and operation of the wind facility. The analysis also consists of an assessment of visual contrasts resulting from those same actions as seen from five KOPs. Because the wind energy facility is proposed on BLM-managed land, the analysis also consists of an assessment of whether the proposed changes to the landscape would meet the BLM's objectives for VRM, as prescribed in the Ely RMP (BLM 2008a).

The analysis of impacts to visual resources also considers an assessment of the changes to night sky conditions that might be caused by the Proposed Action. The impacts to night skies were assessed by comparing the increases in artificial nighttime lighting from the wind facility with current conditions.

4.8.1 Programmatic Environmental Impact Statement Impacts Summary

4.8.1.1 LANDSCAPE CHARACTER

The types of change to a landscape that may result from the construction and operation of a typical wind energy facility are described in Section 5.5 of the PEIS. Because this EA tiers to the PEIS analysis, a brief summary of those changes is presented below. A summary of the related mitigation measures for landscape character related to visual resources that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.8.1.1.1 Construction

Impacts to visual resources associated with construction activities would result from new road development and other ground-disturbing actions. New roads would introduce linear contrasts in the landscape. Other ground-disturbing actions during construction would introduce visual contrasts into the color, form, texture, and line of the existing characteristic landscape. In addition, construction equipment, vehicles, and associated project activities, including restoration, would be temporarily visible during construction activities.

4.8.1.1.2 Operation and Maintenance

Impacts to visual resources associated with operation of a wind energy facility would result from the introduction of large WTGs into largely undeveloped and natural settings. Additionally, all aboveground structures associated with wind energy facilities (including fences around substations) would produce visual contrasts as a result of their typical physical characteristics (form, color, line, and texture) and reflective surfaces.

4.8.1.2 NIGHTTIME LIGHTING AND EXTENT OF SKY GLOW

The types of change to night skies that may result from the construction and operation of a typical wind energy facility are described in Section 5.11.2 of the PEIS. Because this EA tiers to the PEIS analysis, a brief summary of those changes is presented below. A summary of the related mitigation measures for nighttime lighting and sky glow that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.8.1.2.1 Construction

The effects on night skies would be the same as those described under the Operation and Maintenance section below.

4.8.1.2.2 Operation and Maintenance

The addition of security and safety lighting associated with a typical wind energy facility, even if those lights are directed downward, would result in increased nighttime visibility. This is especially the case under the night sky conditions that are typical of the undeveloped areas common for potential wind energy development. The addition of security and safety lighting would also contribute to sky glow. These effects can typically be mitigated by limiting the amount of artificial lighting associated with the facility and by including motion sensor controls.

In addition to security lighting, FAA rules require lights mounted on nacelles that flash red at night (2,000 candela). Typically, the FAA requires warning lights on the first and last WTGs in a string and every 1,000 to 1,400 feet in between. Because the warning beacons at night are red, and operated intermittently, they are not expected to result in increases to sky glow or glare.

4.8.2 Proposed Action

4.8.2.1 LANDSCAPE CHARACTER

4.8.2.1.1 Construction

New roads associated with the Proposed Action would introduce contrasts into the line, color, and texture of the existing landscape. In addition, construction equipment, vehicles, and associated project activities, including restoration, would be temporarily visible during the 9 to 12 months of construction activities. Areas of temporary disturbance would be reclaimed after construction activities are completed. Although construction activities are expected to last 9 to 12 months, it could take up to 10 years before the temporary disturbance areas are no longer visible. Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community. Typically, grasses would establish early on, while shrubs would take much longer to re-establish. Visible signs of the temporary disturbance areas would persist for approximately 10 years beyond the construction and reclamation phase.

4.8.2.2 OPERATION AND MAINTENANCE

Under the Proposed Action, the wind energy facility has three types of facilities that would result in changes to the characteristic landscape: WTGs, substation and distribution, and access roads. The visual evidence of the proposed WTGs in Spring Valley cannot be reduced or concealed as a result of their size and exposed location. The substation and new power line would be located in close proximity to the existing power transmission lines crossing the project area. Although some existing dirt roads through the project area would be used, they would be expanded and improved and 27.8 miles of new dirt surface roads would be introduced, providing access throughout the project area.

During the long-term operation of the wind energy facility, the regular geometric forms and horizontal and vertical lines associated with the WTGs, substation, and access roads would result in a visual contrast with the irregular, organic forms, and colors of the existing landform and vegetation. In addition, color contrast associated with the WTGs would vary throughout the day and throughout the seasons as natural lighting conditions and colors change. Although the WTGs are not a reflective material, when seen from superior viewing positions at certain times of the day, they would result in intermittent bright colors that would sharply contrast with the dull hues of the surrounding tan soils and gray-green vegetation. The proposed access roads and utility infrastructure would parallel and repeat the basic visual elements of existing roads and transmission lines in the project area that are similar in form, line, and color.

A visual resource assessment was completed for the SVWEF, including visual simulations (example provided in Figure 4.8-1) and visual contrast ratings from each of the five KOPs (SWCA 2009e). Although there are visible contrasts apparent from each of the KOPs, four of the KOPs occur along travel routes and contrasts would be visible for only limited periods of time. The contrasts that would result from the Proposed Action are described for each of the KOPs below.

Figure 4.8-1. Visual simulation example for the Proposed Action from Wheeler Peak.

KOP 1. Elements of the Proposed Action would be visible from this KOP. The nearest proposed WTG is located 4.6 miles from the KOP. At this distance, the WTGs would be clearly visible, and there would be a moderate contrast with the line and color of the surrounding landscape. The WTGs would be visible against the backdrop of the valley floor and the rugged Schell Creek Range in the background and would contrast with the wide-open, expansive valley floor. From this section of U.S. Route 6/50, the project would be in view for approximately 7 miles against the backdrop of the Schell Creek Range. Viewers traveling at the 70 mph posted speed limit would view the project for no more than 10 minutes.

KOP 2. From this section of U.S. Route 6/50, the WTGs would be clearly visible for several miles against the backdrop of the Schell Creek Range. The tall vertical lines of the WTGs would contrast with the flowing, organic horizontal lines and the flat, expansive form of the valley floor. The nearest proposed WTG is located approximately 1.3 miles from the KOP. Viewers traveling at the 70 mph posted speed limit would view the project for no more than 10 minutes.

KOP 3. From this section of SR 893, the project would be in view for approximately 5 miles against the backdrop of the Snake Range. The tall, vertical lines of the WTGs are clearly visible and would result in contrasts to the organic horizontal lines of the valley floor and rugged mountains. Additionally, contrasts in form and color would occur. The nearest proposed WTG is located approximately 1 mile from the KOP. Viewers traveling at 65 mph would view the project for no more than 8 minutes.

KOP 4. The majority of WTGs would be set against the darker background of the mountains. The nearest proposed WTG would be located approximately 3.2 miles from the KOP; at this distance, the WTGs would be clearly visible, and contrasts to the organic form, line and color would occur. From this section of SR 893, the project would be in view for approximately 5 miles against the backdrop of the Schell Creek Range. Viewers traveling at 65 mph would view the project for no more than 8 minutes.

KOP 5 (Wheeler Peak). Although the WTGs and other aboveground facilities would be visible, as a result of the distance (11 miles) and the superior angle of observation, the apparent visual contrast would be low. At this distance, the WTGs appear as points on the valley floor connected by the faint geometric lines of the access roads. The scenic panoramic views of the surrounding rugged mountain ranges would dominate the view of visitors at the summit.

VRM objectives for public lands in the project area are Class III and Class IV. Implementation of the Proposed Action would result in moderate contrasts to the existing landscape and would attract the attention of casual viewers traveling through Spring Valley in a manner consistent with Class III/IV VRM objectives.

4.8.2.3 NIGHTTIME LIGHTING AND EXTENT OF SKY GLOW

4.8.2.3.1 Construction

The presence of security lighting and the intermittent need for lighting during nighttime construction activities would create short-term increases in artificial lighting. Nighttime lighting during construction would be directly visible to travelers through Spring Valley. The effects on night skies and sky glow would be the same as those described under the Operation and Maintenance section below.

4.8.2.3.2 Operation and Maintenance

Lighting for the wind facility under the Proposed Action would be designed to provide the minimum illumination needed to achieve safety and security objectives as described in the Lighting Plan (see Appendix C). Lighting would be shielded and directed to focus illumination downward on the desired areas and to minimize additional nighttime illumination from the wind facility. Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not contribute to an increase in the existing sky glow and would not result in a change to the Bortle Dark-Sky rating of Class 3 (Dark Sky Partners 2010).

There would be direct visibility of the warning lights from lands outside the project area, including GBNP. Direct visibility from GBNP would be limited to the ridgeline, high points, and western slopes of the Snake Range. Because trails accessing Wheeler Peak are day use trails only, and a majority of potential use areas along the western slope are forested, there would be minimal impacts to park visitors from direct glare (Dark Sky Partners 2010). Because the warning beacons at night are red, and operate intermittently, they would not result in observable increases to sky glow or glare. Additionally, if the FAA approves the use of intelligent on-demand obstruction lighting described in the section 2.1.4, the direct visibility of obstruction lighting from within Spring Valley and the Great Basin National Park would be further minimized.

4.8.3 Alternate Development Alternative

4.8.3.1 LANDSCAPE CHARACTER

4.8.3.1.1 Construction

Changes to the existing characteristic landscape from construction activities associated with the Alternate Development Alternative would be the same as those described under the Proposed Action. As a result of the changed footprint in this alternative, construction activities associated would occur more than 1 mile farther from KOP 3 and the Bastian Creek Ranch than under the Proposed Action. The increased distance between the ranch and construction activities would result in smaller short-term visible changes to the landscape from construction activities than under the Proposed Action.

4.8.3.1.2 Operation and Maintenance

Changes to the existing landscape from operations associated with the Alternate Development Alternative would be similar to those described under the Proposed Action. Under the Alternate Development Alternative, the SVWEF turbine layout would be located 1 mile farther south from KOP 3 and the Bastian Creek Ranch. At this distance, the visible contrasts would be similar but reduced from those described under the Proposed Action. Visible contrasts apparent from the remaining KOPs would be the same as those described under the Proposed Action.

Implementation of the Alternate Development Alternative would result in moderate contrasts to the existing landscape and would attract the attention of casual viewers traveling through Spring Valley in a manner consistent with Class III VRM objectives. A visual resource assessment was completed for the SVWEF, including visual simulations for the Alternate Development Alternative (example provided in Figure 4.8-2).

4.8.3.2 NIGHTTIME LIGHTING AND EXTENT OF SKY GLOW

4.8.3.2.1 Construction

Because the types and numbers of equipment and storage area locations would be the same as under the Proposed Action, the impacts to nighttime lighting from construction activities associated with the Alternate Development Alternative would be the same as those described under the Proposed Action.

Figure 4.8-2. Visual simulation example for the Alternate Development Alternative from Wheeler Peak.

4.8.3.2.2 Operation and Maintenance

Because the number of WTGs, location of the O&M facility, substation, and associated directional lighting for security would be same as under the Proposed Action, changes to nighttime lighting from operations associated with the Alternate Development Alternative would be the same as those described under the Proposed Action.

4.8.4 No-Action Alternative

4.8.4.1 LANDSCAPE CHARACTER

The current landscape in the area of analysis is characterized by expansive valley floors covered in grasses and shrubs, interspersed with taller juniper trees surrounded by high, rugged, parallel mountain ranges. Existing human modifications in the project area are limited to dirt surface tracks and roads, transmission lines, widely spaced residences, and ranch structures. Under the No-Action Alternative, the SVWEF ROW application would be denied and the landscape would continue to be influenced by these factors and would meet the BLM's objectives for management of VRM Class III areas.

4.8.4.2 NIGHTTIME LIGHTING AND EXTENT OF SKY GLOW

The night skies are characterized as that of a typical, rural sky. Under the No-Action Alternative, the SVWEF ROW application would be denied and night skies would continue to be influenced by existing sources of artificial nighttime light from the widely spread ranches and residences in Spring Valley and the towns of Ely and Baker.

4.9 Noise

Because an increase in ambient noise levels in the area of analysis would be the primary direct impact of the SVWEF on the soundscape, the relative impacts of the Proposed Action and alternative action to the soundscape was assessed by comparing changes in ambient noise levels from the construction and operation of the SVWEF in and around the project area.

Noise emissions are regulated by the EPA and OSHA. It is assumed that the Proposed Action and alternative action would comply with all federal, state, and local noise regulations, requirements, and ordinances during both the construction and operation phases of the wind facility. It is assumed that a hearing protection plan for workers and visitors would be part of the health and safety plan and would comply with OSHA requirements.

Analysis of noise impacts to biological resources is typically restricted to addressing potential impacts to species that use vocalizations during the breeding season. Information concerning the effects of noise on biological resources may be found in Section 4.2.2, Wildlife, and Section 4.3.3, Special-status Species.

4.9.1 Programmatic Environmental Impact Statement Impacts Summary

The types of change to the soundscape that may result from the construction and operation of a typical wind energy facility are described in Section 5.11.2 of the PEIS. Because this EA tiers to the PEIS analysis, a brief summary of those impacts to the soundscape that are relevant to the Proposed Action are presented below. A summary of the related mitigation measures for noise that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.9.1.1 CONSTRUCTION

Construction of a wind energy facility is accomplished in several different stages. Each stage has a different combination of equipment, depending on the work to be accomplished. Most construction activities would occur during the day. Noise levels generated by construction equipment would vary, depending on type, model, size, and condition of the equipment. Construction activities do not typically occur at night, and nighttime noise levels would drop to the background levels of the project area. Because construction activities are short term, the associated effects of noise would be temporary and intermittent.

Noise levels for typical equipment used during the construction of a wind energy facility project site range between 80 to 90 dBA at a distance of 50 feet. For the purposes of analysis, the PEIS assumed that only two of the noisiest pieces of equipment would operate simultaneously during any phase of construction. Based on that assumption, the PEIS estimated that with the two noisiest pieces of equipment operating simultaneously at peak load, noise levels would exceed the EPA guideline for residential Ldn noise (55 dBA) for a distance of 1,640 feet (EPA 1974).

4.9.1.2 OPERATION AND MAINTENANCE

Major noise sources associated with the operation and maintenance of a typical wind energy facility would be mechanical and aerodynamic noise; transformer and switchgear noise from substations; corona noise from transmission lines; vehicular traffic noise, including commuter and visitor and material delivery; and noise from the O&M facility.

The typical sound level from a single 1- to 1.4-MW wind turbine is described in the PEIS as approximately 100 to 104 dBA. Sound levels would decrease to 58 to 62 dBA at a distance of 164 feet from the turbine, which is about the same level as conversational speech at a distance of 3 feet. Sound levels would further decrease to 36 to 40 dBA at a distance of 2,000 feet from the turbine, when the wind is blowing from the turbine toward the noise receptor. This is consistent with the background noise conditions of a typical rural environment.

There are two sources of noise associated with substations: transformer noise and switchgear noise. A transformer produces a constant, low-frequency humming noise. Noise at a distance of 492 feet from an 80- to 160-MW transformer would be about 43 and 46 dBA (BLM 2005). These noise levels at a distance of 1,640 feet would be 33 and 36 dBA, which are typical of background levels in a rural environment.

Because of the arid climate and the remote location of most potential wind development sites on BLM-administered land, the impact of corona noise is not expected to be significant. Although corona noise could be an issue where transmission lines cross more populated areas, it would not likely cause a problem unless the residence is located within 500 feet of the transmission line.

Noise from infrequent diesel generator operations at the O&M facility and from traffic, ranging from light- to medium-duty vehicles, is expected to be negligible. Overall, the noise levels of continuous site operation would be lower than the noise levels associated with short-term construction activities.

4.9.2 Proposed Action

4.9.2.1 CONSTRUCTION

Project construction would occur in a phased schedule over a 9- to 12-month period. The following actions would be implemented as part of the construction phase of the Proposed Action and would result in increased ambient noise levels in the area of analysis consistent with those changes described in the PEIS:

- Employee and construction vehicle traffic; and
- Construction equipment operation.

Construction vehicle traffic would consist of workers traveling to and from the project area and haul trucks carrying equipment, supplies, and materials in and out of the project area. At the peak of construction, 125 employee vehicles would access the project area on a daily basis. Primary access for construction would be via U.S. Route 6/50 and SR 893. Noise from worker vehicles would be similar to the sound of existing traffic on both U.S. Route 6/50 and SR 893. There would be 6,402 large truck trips required for the delivery of turbine components and related equipment to the project site over the course of 9 to 12 months. Assuming a vehicle speed of no more than 25 mph in and adjacent to the project area, the average noise level (Leq) generated by haul trucks during the construction period as a result of the Proposed Action would be approximately 62 dBA at a distance of 50 feet from the source.

The changes in noise levels that would result from construction equipment operation would be the same as those described for the PEIS. The nearest residence occurs on the Bastian Creek Ranch, which is located approximately 1 mile from the nearest turbine location where construction activities would occur. At that distance, the construction noise would be audible intermittently, but noise levels would not exceed the EPA guideline for residential Ldn noise (55 dBA).

4.9.2.2 OPERATION AND MAINTENANCE

Noise associated with the operation and maintenance of the wind energy facility would occur throughout the 20-year life of the project. The following actions and facilities would be implemented as part of the Proposed Action and would result in increased ambient noise levels in the area of analysis consistent with those changes described in the PEIS:

- WTGs;
- Substation and transmission line;
- Employee and maintenance vehicle traffic; and
- Generator at the O&M facility.

WTGs under the Proposed Action are 2.0 to 2.3 MW. Noise levels of 55 dBA are projected by the turbine manufacturer to occur at 400 feet from the WTGs (Figure 4.9-1). Noise levels along the perimeter of the project area would be between 40 and 45 dBA, which is less than the existing daytime ambient noise levels of 55 dBA (Figure 4.9-1). As a result of noise attenuation over increasing distances, the noise resulting from the operation of WTGs would not be audible at the Bastian Creek Ranch, private property to the southeast, Cleve Creek Campground, or any location within the GBNP.

Transformer and switchgear noise from the substation and switchyard, along with corona noise from the transmission line, would result in noise levels similar to those described in the PEIS. Because there are no residences within 500 feet of the proposed transmission line and there are several existing transmission lines adjacent to the proposed transmission line, corona noise from the proposed transmission line would not be audible outside the project area.

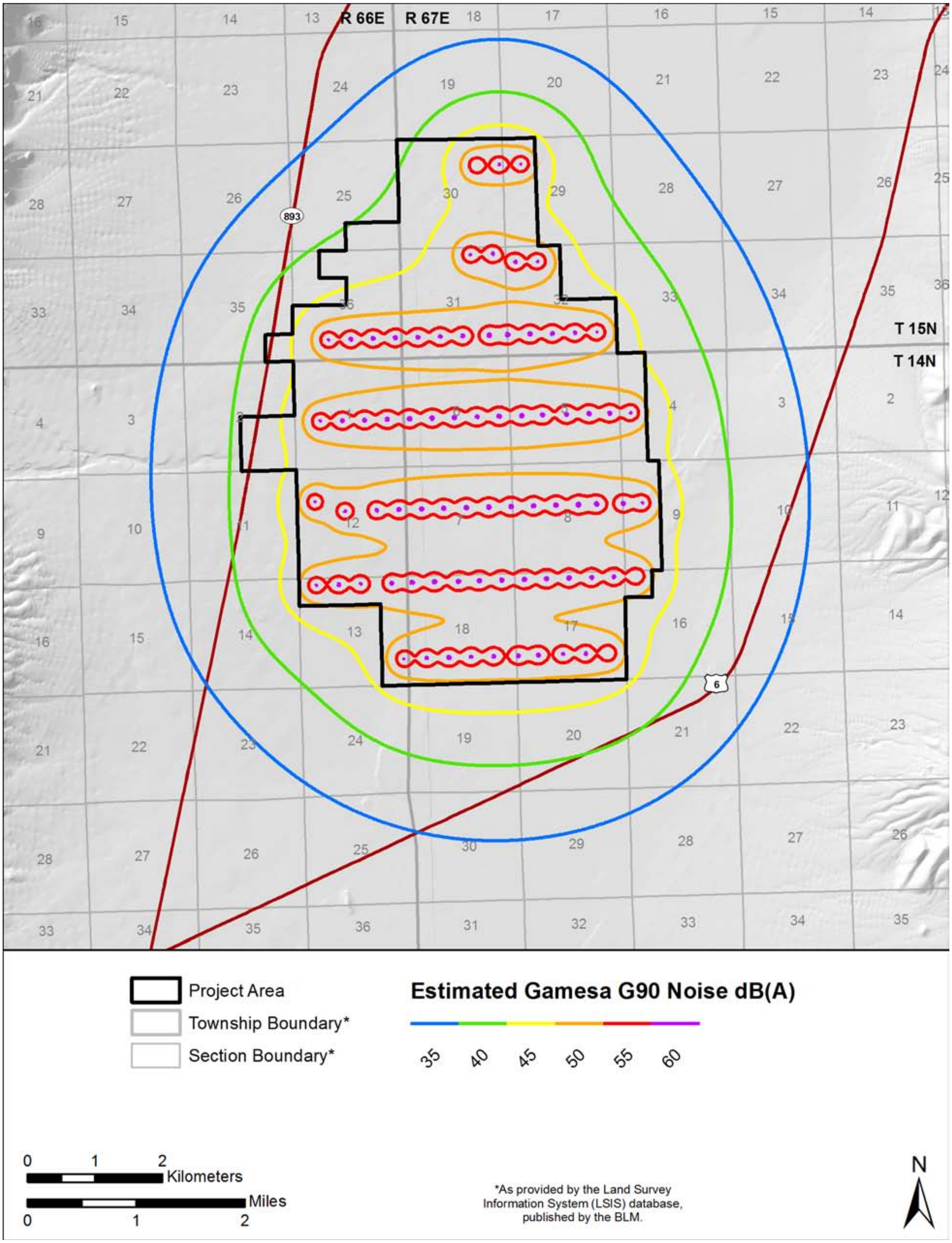

Figure 4.9-1. Noise levels for the Proposed Action.

Employee vehicle traffic would consist of workers traveling to and from the project area, intermittent delivery trucks carrying supplies, materials in and out of the project area, and maintenance vehicles within the project area. Up to 12 employee vehicles would access the project area on a daily basis. Primary access for construction would be via U.S. Route 50 and SR 893. Noise from worker vehicles would be consistent with the current sounds of existing traffic on both U.S. Route 50 and SR 893. The operational noise at the O&M facility would be consistent with those described in the PEIS and would not be audible outside the project area.

4.9.3 Alternate Development Alternative

4.9.3.1 CONSTRUCTION

Changes in ambient noise levels from construction activities associated with the Alternate Development Alternative would be similar to those described for the Proposed Action. Increased ambient noise levels from employee traffic and haul trucks would occur for the same duration as that described under the Proposed Action.

Under the Alternate Development Alternative, the turbines nearest the Bastian Creek Ranch from the Proposed Action would not be constructed (Figure 4.9-2). As a result of the changed footprint in this alternative, construction activities associated would occur more than 1 mile farther from the Bastian Creek Ranch than under the Proposed Action. The increased distance between the ranch and construction activities would result in a smaller short-term increase in audible construction noise than under the Proposed Action.

4.9.3.2 OPERATION AND MAINTENANCE

Changes in ambient noise levels from operations associated with the Alternate Development Alternative would be the same as those described for the Proposed Action. Under the Alternate Development Alternative, the SVWEF turbine layout would be located farther south from the Bastian Creek Ranch. Because noise levels along the perimeter of the project area would remain less than the existing ambient noise level (see Figure 4.9-2), the change to the turbine layout would not result in audible changes to noise levels at the Bastian Creek Ranch, Cleve Creek Campground, or any location within the GBNP.

4.9.4 No-Action Alternative

Existing noise sources in the area of analysis consist of sporadic vehicle traffic, small machinery, distant aircraft, and natural sounds from wind, rustling vegetation, birds, and insects. Under the No-Action Alternative, the SVWEF ROW application would be denied and current ambient noise levels in the area of analysis would continue to be influenced by these factors, and existing conditions of the soundscape would remain quiet.

4.10 Transportation

This section discusses impacts to transportation from the construction and operation of the Spring Valley wind energy facility. Impacts to transportation would be determined by changes to traffic volumes and public access that are brought on by the implementation of the Proposed Action or the Alternate Development Alternative.

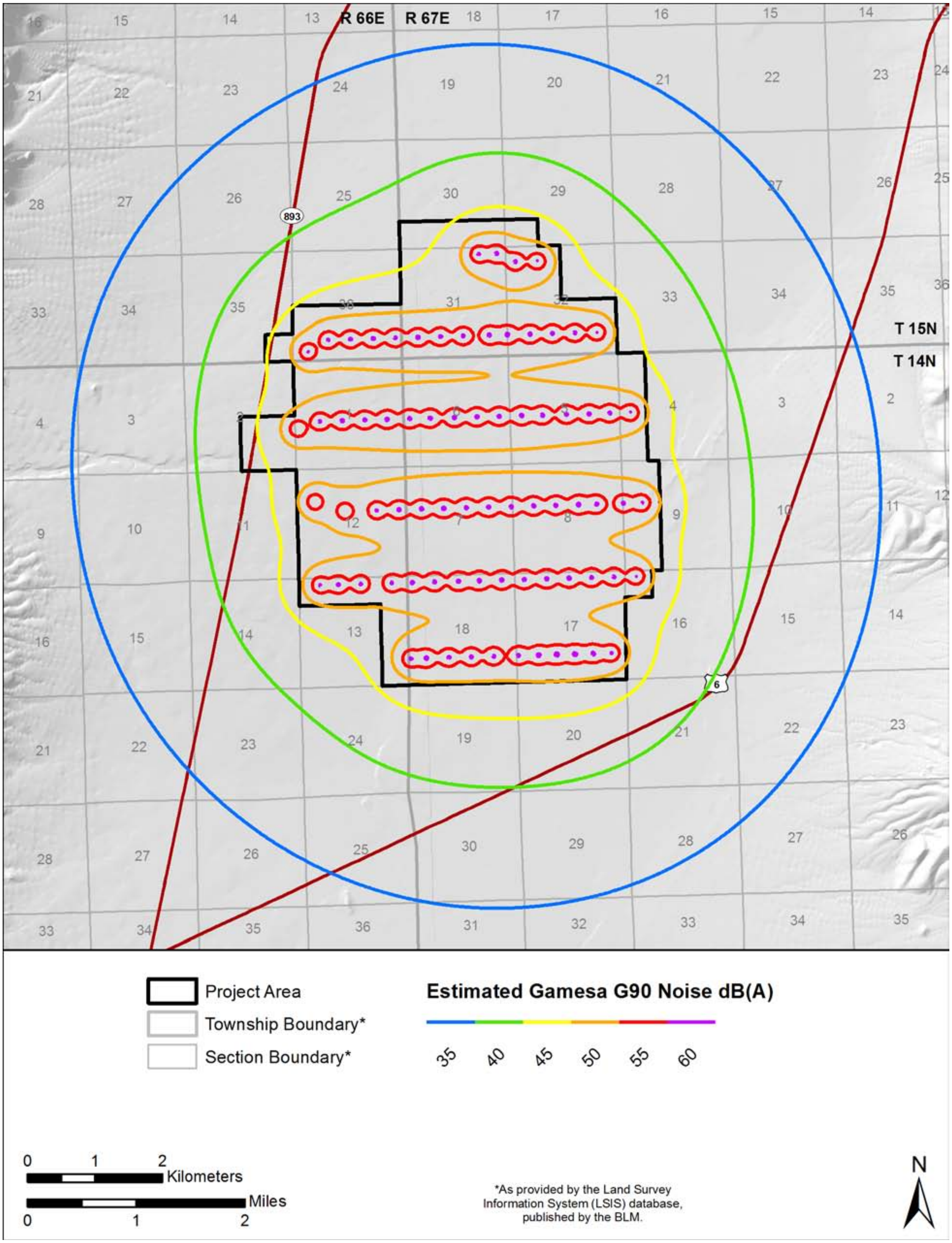

Figure 4.9-2. Noise levels for the Alternate Development Alternative.

4.10.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to transportation from a typical wind energy facility are described in Section 5.6 of the Land Use section of the PEIS and are consistent with this project. Because this EA tiers to the PEIS analysis, a brief summary of impacts to transportation is presented below. A summary of the related mitigation measures for transportation that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.10.1.1 CONSTRUCTION

Transportation of equipment and materials to a typical wind energy facility during construction would result in short-term increases in the traffic levels during the construction period. Most construction equipment (e.g., heavy earthmoving equipment and cranes) would remain on-site during the entire construction period.

Delivery of overweight and/or oversized loads would result in temporary disruptions on the secondary and primary roads used to access a construction site.

4.10.1.2 OPERATION AND MAINTENANCE

Typical wind energy facilities may be attended by a small maintenance crew of six individuals or fewer. The transportation needs of a small maintenance staff would be restricted to a small number of daily trips by pickup trucks, medium-duty vehicles, or personal vehicles. During the life of a wind energy facility, it may become necessary to replace large pieces of equipment in the event of mechanical problems. The need for such deliveries would be expected to be infrequent.

4.10.2 Proposed Action

4.10.2.1 CONSTRUCTION

Under the Proposed Action, approximately 27.8 miles of new roads would be constructed within the project area to provide construction and delivery personnel with access to turbine sites and associated project facilities. Site construction activities would involve vehicular traffic, associated equipment delivery, turbine erection, turbine and ancillary facility construction, and access road construction. At the peak of construction, approximately 150 daily round trips by vehicles transporting construction personnel to the site each day would occur. Additionally, over the entire course of the construction period, approximately 6,402 trips of large trucks delivering the turbine components and related equipment to the project site would occur. Deliveries would not occur on a regular daily basis throughout the construction period.

Short-term adverse impacts associated with project construction would consist of an increase of almost three times the current daily traffic volume along SR 893. This increase would result in access delays to current travelers in the area. The additional large-truck traffic would contribute to greater traffic delays intermittently on U.S. Route 93, U.S. Route 6/50, and SR 893. This increased traffic would occur during the 9- to 12-month construction phase.

A site-specific Traffic Management Plan for the SVWEF has been prepared (see Appendix B) that provides methods for addressing traffic control issues resulting from construction activities, minimum road design standards, and any other stipulations required by the BLM or any other associated land management/jurisdictional agencies. The plan also includes minimum requirements of a route study and transportation plan that would be completed by the turbine vendor, once turbines are purchased. Incorporation of these methods into the Proposed Action would reduce adverse impacts by managing traffic flow and reducing delays.

4.10.2.2 OPERATION AND MAINTENANCE

Operation and maintenance of the SVWEF would result in similar impacts to transportation as those described in the PEIS; however, up to 12 regular employees would be on-site each day. The access roads built and used during the construction phase would be maintained throughout commercial operations. Because of the small number of permanent staff, the Proposed Action would not result in long-term adverse impacts to transportation within or near the project area.

4.10.3 Alternate Development Alternative

4.10.3.1 CONSTRUCTION

Because the construction methods, employment numbers, and timing would be the same under the Alternate Development Alternative as the Proposed Action, the short-term, intermittent increases in traffic and delays in access would be the same.

4.10.3.2 OPERATION

Because the long term employment levels and number of new access roads would be the same as under the Proposed Action, the impacts to transportation under the Alternate Development Alternative would be the same as those under the Proposed Action.

4.10.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied traffic and transportation in the project area and across Spring Valley would continue to be influenced by current conditions.

4.11 Land Use and Special Designations

This section discusses impacts to land use and special designations from the construction and operation of the SVWEF. Impacts to land use and special designations are assessed by determining conflicts with existing plans, designations, management prescriptions, or changes to the types of existing land uses in the analysis area brought on by the implementation of the Proposed Action or the Alternate Development Alternative. As stated in Chapter 2, the BLM has determined that the proposed SVWEF is in conformance with the Ely RMP and is consistent with the White Pine County Land Use Plan.

4.11.1 Programmatic Environmental Impact Statement Impacts Summary

4.11.1.1 LANDS AND REALTY

Potential impacts to lands and realty from a typical wind energy facility are described in Section 5.10 of the PEIS and are consistent with this project. Because this EA tiers to the PEIS, a brief summary of the impacts to lands and realty that are relevant to the Proposed Action is presented below. A summary of the related mitigation measures for lands and realty that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.11.1.1.1 Construction

Construction activities associated with a typical wind energy facility would result in the short-term, intermittent loss of BLM lands available for existing authorized uses (BLM 2005:Section 5.10.1).

4.11.1.1.2 Operation and Maintenance

The footprint of a typical wind energy facility is a fraction of the overall leased area. For that reason, wind energy facilities are considered to be compatible with a wide variety of land uses and do not preclude other existing or pending activities that occur within a project area (BLM 2005:Section 5.10.1).

4.11.1.2 SPECIAL DESIGNATIONS

When the PEIS was prepared, ACECs were excluded from consideration for wind energy development because they were identified as containing resources that could result in the denial of wind energy development applications (BLM 2005:Section 5.10.1). For that reason, impacts to ACECs are not described in the PEIS, and only the project-specific impacts to ACECs are presented in this EA.

4.11.2 Proposed Action

4.11.2.1 LANDS AND REALTY

4.11.2.1.1 Construction

The increased vehicle traffic from construction employees and component deliveries would result in intermittent delays to individuals accessing existing ROWs in and adjacent to the project area. These intermittent delays would occur over the 9- to 12-month construction period, after which time ROW access would return to current conditions. A traffic management plan detailing on-site traffic management requirements and route transportation planning guidelines for the project is available in Appendix B and would help reduce impacts to ROW access by managing traffic flow.

4.11.2.1.2 Operation and Maintenance

Under the Proposed Action, BLM would issue a 30-year non-exclusive ROW grant to allow the wind energy facility on federally managed lands. Because the wind energy facility ROW must conform to the terms and conditions of previously issued ROWs, there would be no impacts to utility corridors and other existing ROWs from implementing the Proposed Action.

As described in the PEIS, the majority of the SVWEF project area would remain available for other compatible land uses. Pending ROWs described in Section 3.11.1 of the EA, including the SNWA proposed water pipeline and groundwater development facilities, and SNWA ROW N-84216 (piezometers), would be compatible with the SVWEF so long as those uses avoid conflicts with the operation and maintenance of the SVWEF. The area of avoidance would correspond to the permanent SVWEF footprint, which is 1% of the project area.

4.11.2.2 SPECIAL DESIGNATIONS

Although the SVWEF does not overlap any ACEC boundaries and is in conformance with the special management prescriptions identified for both ACECs in the BLM Ely RMP, because the Proposed Action would indirectly impact resources associated with the ACECs, these resources are included for analysis.

4.11.2.2.1 Construction

Construction activities associated with the Proposed Action would not result in conflicts with the special management prescriptions for the Rose Guano Cave or Swamp Cedar ACECs. Installation of the infrared beam-break system or remotely accessible bat acoustic detector directly into the native rock of the Rose Guano Cave would result in an alteration of the rock face at the cave entrance. The equipment would allow data to be collected related to movements of the Brazilian free-tailed bat population in and out of the cave. The addition of the equipment would not adversely affect the status of the cave as an ACEC and may lead to improvements in the special management of the cave as an ACEC.

An increase in ambient noise and fugitive dust would result from construction activities and would diminish the natural and undeveloped setting of the Swamp Cedar ACEC over the 9- to 12-month construction period. These impacts would be reduced through implementation of BMPs described in Table 6.2-1.

Construction activities would not result in long-term changes to the resources for which the Rose Guano Cave and Swamp Cedar ACECs were designated. Although there would be short-term decreases in surface water sources and loss of vegetation, the Brazilian free-tailed bats associated with the Rose Guano Cave ACEC are able to forage in the extensive areas of Spring Valley outside the project area during the construction period. Additional impacts to this species are discussed in Section 4.3, Special-status Species.

During initial geotechnical investigations conducted on the site, groundwater was encountered at a minimum of 14.5 feet but more often at a range of 18 to 40 feet (Kleinfelder 2010). Because turbine foundations would only be at a depth of approximately 8 feet, it is unlikely that the hydrology of the site would be adversely affected. Additionally, site-specific geotechnical analysis would occur at each proposed turbine location prior to any construction activities, and specific measures would be developed as needed to address geotechnical issues. If the perching groundwater layer, as identified by the on-site geologist or geotechnical engineer or engineer's representative is breached, the hole or breach point would be seal grouted to preserve the subsurface hydrology that feeds the local system. Based on the hydrogeology study, recharge of the basin aquifer occurs on the basin margins and the project area is in an area of net discharge, primarily through evapo-transpiration. As a result, construction activities would not result in changes to the existing hydrology that supports the vegetation in the Swamp Cedar ACEC (Kleinfelder 2010).

4.11.2.2.2 Operation and Maintenance

Operation and maintenance activities associated with the Proposed Action would not result in conflicts with the special management prescriptions for the Rose Guano Cave and Swamp Cedar ACECs. Direct, short-term impacts to the Swamp Cedar ACEC would include groundwater impacts described in Section 5.3.2.4 and vegetation impacts described in Section 5.9.2.1 of the PEIS (BLM 2005). Potential groundwater impacts include alteration of surface and subsurface water flows and degradation of water quality. Potential vegetation impacts include fugitive dust, establishment of invasive plants, exposure to contaminants, and direct injury or mortality of vegetation.

Operations would result in impacts to the Brazilian free-tailed bats associated with the Rose Guano Cave ACEC and are described in Section 4.3.3.6, Special-status Bats. The presence of WTGs would result in long-term changes to the natural and undeveloped character of lands that contribute to the historic setting of the Swamp Cedar ACEC and are further described in Section 4.8, Visual Resources, and Section 4.6, Cultural Resources.

4.11.3 Alternate Development Alternative

4.11.3.1 LANDS AND REALTY

4.11.3.1.1 Construction

Because the construction methods and timing would be the same under the Alternate Development Alternative as under the Proposed Action, the short-term, intermittent conflicts with existing land uses would be similar. Under the Alternate Development Alternative, construction activities would be limited to the smaller project area (7,673 acres). The effects of construction activities on ROW access would occur over a smaller area than under the Proposed Action.

4.11.3.1.2 Operation and Maintenance

The types of impacts to lands and realty under the Alternate Development Alternative would be the same as those described under the Proposed Action. Because the WTG and facility layout would occur in a smaller area, and there would be fewer new access roads, the area of avoidance for new proposed land uses would be less than under the Proposed Action.

4.11.3.2 SPECIAL DESIGNATIONS

4.11.3.2.1 Construction

Because the construction methods, timing, and location relative to the ACECs would be the same as those described under the Proposed Action, construction-related impacts to ACECs resulting from implementation of the Alternate Development Alternative would be the same as under the Proposed Action. Additionally, because the project area is located in a groundwater discharge area, construction activities would not result in changes to the existing hydrology that supports the vegetation in the Swamp Cedar ACEC (Kleinfelder 2010).

Installation of the infrared beam-break system or remotely accessible bat acoustic detector directly into the native rock of the Rose Guano Cave would result in impacts to the ACEC that are the same as under the Proposed Action.

4.11.3.2.2 Operation and Maintenance

Because the alternative WTG layout avoids all water resources, impacts to the Brazilian free-tailed bats associated with the Rose Guano Cave ACEC would be fewer than under the Proposed Action. These impacts are described in detail in Section 4.3.3.6, Special-status Bats. The alternative WTG layout would result in changes to the natural and undeveloped character of lands that contribute to the historic setting of the Swamp Cedar ACEC that are similar to those under the Proposed Action.

4.11.4 No-Action Alternative

4.11.4.1 LANDS AND REALTY

Under the No-Action Alternative, the SVWEF ROW application would be denied and the BLM land on which the project is proposed would continue to be managed within BLM's framework of a program of multiple use and sustained yield and the maintenance of environmental quality (43 USC 1781 (b)) in conformance with applicable statues, regulations, and BLM's Ely RMP. Current land uses in the area of analysis include grazing, utilities, dispersed recreation, low-density residential, and transportation. Land in the immediate vicinity of the project area would remain primarily open rangelands, with utilities, roads, and widely dispersed, low-density residential uses on private parcels. Current land uses in the analysis area would continue under the No-Action Alternative, and the project area would become available to other uses consistent with BLM's Ely RMP/FEIS, potentially including other wind energy projects.

4.11.4.2 SPECIAL DESIGNATIONS

Under the No-Action Alternative, a ROW for the SVWEF would not be issued. Management of the Rose Guano Cave and Swamp Cedar ACECs would continue as directed by the BLM Ely RMP/FEIS (BLM 2008a). Resources associated with the ACECs would continue to be influenced by existing current conditions.

4.12 Recreation

This section discusses impacts to recreation from the construction and operation of the SVWEF Proposed Action and Alternate Development Alternative. Impacts to recreation would be determined by changes to recreation sites, opportunities, and activities. Additionally, impacts would be determined by changes to the settings needed to support those activities and desired recreational experiences that are brought on by the implementation of the Proposed Action.

The analysis area includes lands adjacent to the project area where the sights from the Proposed Action would be experienced by the visitor. To assess changes to recreation opportunities resulting from the wind energy facility, this analysis references information from the Visual Resources section of this chapter.

4.12.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to recreation areas from a typical wind energy facility are described in Section 5.10.4 of the Land Use section of the PEIS and are consistent with the Proposed Action. Because this EA tiers to the PEIS analysis, a brief summary of impacts to recreation is presented below. A summary of the related mitigation measures for recreation that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.12.1.1 CONSTRUCTION

During construction, noise, dust, traffic, and the presence of a construction force would diminish the rural and primitive character of typical project areas in the short term. Changes to the rural and primitive character of an area would result in displacement of some visitors as they seek other undeveloped areas in which to engage in recreational activities (BLM 2005:Section 5.10.4).

4.12.1.2 OPERATION AND MAINTENANCE

Operation and maintenance of typical wind energy facilities would have both positive and negative effects on the opportunities for dispersed recreation activities. Access roads associated with typical wind energy facilities could result in enhanced public access to some previously difficult or inaccessible areas. Alternately, persons who may otherwise use an area for remote and dispersed recreational experience may be displaced to other locations (BLM 2005:Section 5.10.4).

4.12.2 Proposed Action

4.12.2.1 CONSTRUCTION

Under the Proposed Action, changes to recreation opportunities in and around the project area would result from restricted public access during construction activities and from changes to the characteristic rural and primitive setting of Spring Valley. Public access would be restricted where active construction is taking place and would result in the short-term displacement of dispersed recreational opportunities, such as hunting, within a portion of the Loneliest Highway SRMA. Warning signs would be posted along access roads indicating the dates of construction activities and recommending that the public take alternate routes during that time period. The intermittent loss of public access would occur over a period of 9 to 12 months.

The increased daily traffic from construction workers traveling to and from the project area and the traffic control necessary for large turbine component delivery vehicles would result in short-term, intermittent delays for visitors to Cleve Creek Campground, Sacramento Pass, GBNP, and other dispersed recreation opportunities within Spring Valley and the surrounding mountains. The project Traffic Management Plan (see Appendix B) would help reduce traffic delays.

Because the effects of construction would occur over a period of 9 to 12 months, the Proposed Action would not result in long-term changes to recreation sites, uses, experiences, or opportunities. Additionally, the short-term impacts of construction activities are not expected to result in the permanent displacement of recreation user groups to other recreation sites or areas. BMPs from the PEIS for minimizing resource impacts during the construction phase would be implemented during development of the Proposed Action and are listed in Table 6.2-1.

4.12.2.2 OPERATION AND MAINTENANCE

There would be no direct loss of developed recreation sites within the SRMA as a result of the Proposed Action. The introduction of large WTGs would result in decreased scenic quality, affecting the experience of visitors seeking primitive and dispersed recreation opportunities within this portion of the Loneliest Highway SRMA. The Proposed Action would be clearly visible to visitors traveling to GBNP from the west. Additionally, elements of the SVWEF would be visible from the west side of the Snake Range, Wheeler Peak, and portions of the Wheeler Peak Trail. Visual resource impacts are further discussed in Section 4.8.

Public access through the project area would be restored during operations. Only the substation and O&M facility would be securely fenced. The improvement of existing dirt surface roads and the addition of 27.5 miles of new roads constructed and maintained through the project area would result in improved public access across Spring Valley. Although road access in the project area would be improved, it would not result in an increase in public use of the area. The wide, flat, graded access roads necessary for the SVWEF are not anticipated to attract additional OHV recreational use to the project area.

Although hunting would not be excluded from the project area, the presence of WTGs, structures, and a permanent workforce would discourage hunters from using the project area. Because elk and mule deer do not typically congregate in the valleys during the hunt season and NDOW does not recommend the lower elevations common in Spring Valley for elk and mule deer hunts, operations would not result in a loss of hunting opportunities for elk and mule deer. Pronghorn are known to congregate in the valley floors typical of the project area during the hunt season, and NDOW does recommend valley floors in Game Management Unit 111 for pronghorn hunts. Because the project area represents only 1% of Game Management Unit 111 and large areas of the valley floor where pronghorn congregate would remain undeveloped, the result of operations on pronghorn hunting opportunities within the game management unit would be minor.

4.12.3 Alternate Development Alternative

4.12.3.1 CONSTRUCTION

Changes to recreation sites, settings, opportunities, and activities from construction activities associated with the Alternate Development Alternative would be similar to those described under the Proposed Action. Restrictions to public access, intermittent traffic delays, and changes to the rural and primitive character of the area would occur for the same duration as that described under the Proposed Action.

4.12.3.2 OPERATION

The types of impacts to recreation under the Alternate Development Alternative would be the same as those described under the Proposed Action. The overall amount of land where changes to recreation opportunities, settings, and activities would occur would remain the same as under the Proposed Action. Because the turbine and facility layout is different in places, the specific lands where displacement and changes to dispersed recreation opportunities would occur within the project area would be different.

4.12.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied and recreation opportunities in the project area would continue to be managed consistent with the objectives of the Loneliest Highway SRMA and BLM’s Ely RMP/FEIS. Current recreation opportunities, settings, and activities in the area of analysis would continue to be affected by existing conditions under the No-Action Alternative. The project area would remain available for recreation activities, including hunting, motorized touring, and other types of dispersed recreation.

4.13 Socioeconomics

This section discusses impacts to socioeconomics from the construction and operation of the SVWEF. Impacts to socioeconomics are considered in terms of the potential changes to employment, income, and tax revenues brought on by the implementation of the Proposed Action and the Alternate Development Alternative.

4.13.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to socioeconomics from a typical wind energy facility are described in Sections 5.13.1 and 5.13.2 of the PEIS and are consistent with the Proposed Action. Because this EA tiers to the PEIS analysis, a brief summary of impacts to socioeconomics is presented below. A summary of the related mitigation measures for socioeconomics that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.13.1.1 CONSTRUCTION

Direct impacts to socioeconomics associated with construction and operation of a typical wind energy facility include the creation of new jobs and the associated income and taxes paid. Indirect impacts would result from new economic development and include new jobs at businesses that support the wind energy facility workforce or provide services and materials for the wind energy facility itself, along with associated income and taxes.

4.13.1.2 OPERATION AND MAINTENANCE

Studies of the indirect impacts to property values of areas surrounding and nearby the typical wind farm operation are described in Section 5.13.2 of the PEIS. A loss of private residential property value is often raised as a concern related to the location of wind energy facilities. The PEIS did not directly assess the impacts of wind energy facilities on property values; however, the PEIS did summarize the results of two existing studies that found no evidence that the presence of WTGs resulted in decreased property values.

4.13.2 Proposed Action

4.13.2.1 CONSTRUCTION

Construction activities associated with the Proposed Action would result in the addition of 175 to 225 new construction-related jobs in the area. It is assumed that a portion of construction staff would be hired from outside White Pine County. Because of the short-term nature of the construction activities, it is further assumed that workers from out of the area would not relocate with their families. This short-term increase in population would result in an increased demand for hotel rooms, rental properties, and local services (restaurants, grocery stores, etc.). The short-term increase in population would also result in increased local spending, which would benefit White Pine County businesses and increase local room and sales tax revenue over the 9- to 12-month construction period. Because workers from outside White Pine County would represent only a portion of the overall construction workforce and are not expected to be accompanied by families, the increase in demand on community facilities and services (schools, hospitals, etc.) would be minor.

4.13.2.2 OPERATION AND MAINTENANCE

The impacts to socioeconomics associated with the operation and maintenance of a wind energy facility would occur from changes in the local economy. Activities that would result in changes to the local economy consist of increased local employment, increased purchase of materials and supplies from local vendors, increased expenditures by workers for lodging, restaurants, and recreation, and increased property tax revenue to White Pine County. All of these changes would have a beneficial impact to the local economy.

Employment associated with the operation of the proposed wind energy facility would total 12 new long-term jobs. Twelve new long-term jobs represent 1% of the employment opportunities currently provided by the mining industry in White Pine County. Because of the small number of new jobs relative to current employment opportunities in White Pine County, the change to employment, housing, population, community facilities, and services would be minor during operations.

Nevada assesses property taxes on WTGs based on the WTGs' being personal and not real property. Annual personal property tax revenues would accrue to White Pine County. A typical turbine costs $3,500,000 installed (Windustry 2009). Based on a maximum of 75 turbines installed, the project would have an approximate value of $260,000,000. The current tax rate is 3.66% of the assessed project value × 35%. In addition, there is a 50% tax abatement in place for wind projects. Accordingly, if the project was assessed at $260 million, the first year's personal property taxes would be $1,655,300 ($260,000,000 × 3.66% × 35% × 0.5 = $1,655,300) (personal communication, George Hardie, SVW, November 4, 2009). These tax revenues would decline each year as the value of the facility components depreciate.

There are several private land parcels adjacent to and near the project area. Because there are so few residential private land parcels in Spring Valley, a site-specific study of the effects of the wind energy facility on property values was not prepared. In addition to the general analysis presented in the PEIS, a study prepared for the DOE in 2009 provides further support that the presence of WTGs has no impact on property values (Hoen 2009). Based on data collected from the sale of 7,500 single-family homes located within 10 miles of 24 existing wind facilities in nine different states, the study found no evidence that home prices in lands surrounding wind facilities are impacted by either the view of wind facilities or the distance from the home to those facilities. Although there is the possibility that values of some individual homes have been or could be negatively impacted, those impacts have been either too small and/or too infrequent to be considered an observable impact (Hoen 2009:75).Tourism in White Pine County is largely based on available outdoor recreational opportunities (White Pine County Tourism and Recreation Board 2008). The project area is representative of the overall landscape seen in White Pine County but does not provide any facilities to encourage tourism in the immediate area. The closest area that draws tourists is the Cleve Creek Campground. The SVWEF is not visible from the campground and therefore is not anticipated to see a measurable reduction or increase in visitation.

There is evidence that wind projects do not have a negative impact on tourism but may lead to increased visitation (American Wind Energy Association 2010). However, because of the isolated nature of the SVWEF, an increase in tourism to that part of White Pine County is not anticipated. A small but immeasurable increase in visitation to the project area may occur from people already in the area visiting GBNP or other tourist sites, stopping to view the facility as they drive past.

4.13.3 Alternate Development Alternative

4.13.3.1 CONSTRUCTION

Because the construction staffing and timing would be the same under the Alternate Development Alternative as under the Proposed Action, impacts to socioeconomics would be the same.

4.13.3.2 OPERATION

The impacts to socioeconomics under the Alternate Development Alternative would be the same as those under the Proposed Action. The long-term employment opportunities would be the same as under the Proposed Action. Because the same number of turbines would be installed, the increase in property tax income to the county would be the same as under the Proposed Action and there would be no change in the value of private property parcels.

4.13.4 No-Action Alternative

Under the No-Action Alternative, the SVWEF ROW application would be denied and the wind generation facility would not be constructed, and socioeconomic conditions in White Pine County and the vicinity of the project area would continue to be subject to existing conditions and local trends. There would be no new short-term or long-term jobs created and no increase in property taxes to the County.

4.14 Air Quality

This section discusses impacts to air quality from the construction and operation of the SVWEF. Both indirect and direct impacts are analyzed for air quality. The impacts analysis for air quality is an assessment of the increases in criteria pollutants and the effect to attainment status in the project that would result from the construction and operation of the wind energy facility under the Proposed Action and alternatives. Because changes in the emissions of criteria pollutants would be the primary direct impacts of the wind energy facility on air quality, the relative impacts to air quality were assessed by comparing the changes that would result from the construction and operation of the wind facility under the alternatives.

The impacts analysis of air quality takes into account the implementation of the design features described in Section 2.1.4. Additionally, the impacts analysis of air quality takes into account the implementation of measures and actions described in Section 6.0.

4.14.1 Programmatic Environmental Impact Statement Impacts Summary

Potential impacts to air quality from a typical wind energy facility are described in Section 5.4 of the PEIS and are consistent with this project. Because this EA tiers to the PEIS, a brief summary of those impacts to air quality that are relevant to the Proposed Action is presented below. A summary of the related mitigation measures for air quality that have been fully analyzed in the PEIS is provided in Section 6.2 of this EA. The impacts and mitigation measures analyzed and described for the PEIS are herein incorporated into this document.

4.14.1.1 CONSTRUCTION

Impacts to air quality from construction equipment and activities associated with typical wind energy facilities are described in Section 5.4.2. Typically, air quality impacts modeling are not required because the impacts of construction projects are localized and temporary. Construction activities for a typical wind farm consist of the following: site access, clearing, and grading; foundation excavations and installations; WTG erection and nacelle and rotor installation; and miscellaneous ancillary construction.

Emissions generated during site access development and clearing activities typically include tailpipe emissions from vehicles, and the emissions from diesel equipment, such as bulldozers, scrapers, dump trucks, loaders, and rollers. Fugitive dust from disturbed soils would be a major source of particulate emissions. Blasting, if required, would produce small amounts of CO, nitrogen oxides, and particulates.

During typical foundation excavation and installation operations vehicle travel, grading, excavation, and backfilling would result in increased in fugitive dust. Diesel engines would be the primary source of tailpipe emissions. Additional emissions would result from increased vehicle operation and the operation of construction equipment and generators. Concrete batching would result in increased PM associated with truck travel and mixing concrete.

During WTG erection, typical emissions would include continued PM and tailpipe emissions as a result of increased vehicles. Construction activities would continue to result in fugitive PM from earthmoving, backfilling, and grading as well as the tailpipe emissions from construction equipment. Additionally, trenching for buried electrical lines would result in increased PM.

4.14.1.2 OPERATION

Operation of a typical wind energy facility would not result in adverse impacts to air quality. Operations consist of operation of the wind turbines and maintenance. Maintenance activities are typically limited to routine maintenance and major overhauls and repairs.

Operating WTGs do not produce direct emissions. Other operations would result in increased fugitive dust from road travel, vehicular exhaust, and brush clearing in addition to the tailpipe emissions associated with vehicle travel. These activities would be limited in extent and duration.

4.14.2 Proposed Action

4.14.2.1 CONSTRUCTION

Motorized construction vehicles that would be used during construction consist of delivery trucks, road graders, backhoes, bulldozers, track-mounted augers, and welding rigs. During construction, soil-disturbing activities, such as drilling and grading associated with the Proposed Action, would generate short-term increases in CO and PM_{10} emissions in the project area. Increases would occur during construction activities and from the use of gas powered generators and would be localized to the construction zone and project site (Table 4.14-1). Construction activities that would cause these increases would last no longer than 9 to 12 months and increases in CO and PM_{10} would not affect the attainment status of the project area.

Table 4.14-1. Pollutants and Factors Influencing Emissions

Activity	Pollutants	Factors	Spring Valley
Vehicle Traffic	CO, NO_x, volatile organic compounds (VOCs), particulates, SO_2, air toxics	Vehicle miles traveled (VMT)	
Equipment Delivery Trucks (6,402 round trips)			3,361,050 VMT
Construction Employee Vehicles (39,150 total round trips)			2,740,500 VMT
Water Delivery (2,000 round trips)			40,000 VMT
Fugitive Dust from Travel on Unpaved Roads	Particulates	VMT, road conditions (e.g., silt loading, silt content, moisture content, and vehicle weight)	
Fugitive Dust from Construction Activities	Particulates	Acres disturbed	336.9 acres
Construction Equipment Exhaust	CO, NO_x, VOCs, particulates, SO_2, air toxics	Volume of fuel used	
Concrete Batch Plant	Particulates	Volume of concrete produced	540 tons

Greenhouse gas emissions from the Proposed Action (e.g., emissions related to construction and transportation) would be relatively small compared to the 8,026 million tons of CO_2-equivalent GHGs emitted in the U.S. in 2007, and the 54 billion tons of CO_2-equivalent anthropogenic GHGs emitted globally in 2004.

4.14.2.2 OPERATION

The energy produced by the SWVEF would be free of both criteria air pollutants and GHGs. Additionally, the proposed SVWEF would generate electrical power from a renewable source of energy (wind). Accordingly, the SVWEF would produce a given amount of energy with fewer GHG emissions than a fossil fuel-burning power plant.

4.14.3 Alternate Development Alternative

4.14.3.1 CONSTRUCTION

Changes in air quality from construction activities associated with the Alternate Development Alternative would be similar to those described for the Proposed Action. There would be the same number of vehicle trips for both construction employees and materials delivery and the same mileage for new unpaved access roads. There would only be 325.4 acres disturbed under the Alternate Development Alternative.

4.14.3.2 OPERATION

Changes in air quality from the operation of the Alternate Development Alternative would be the same as those described for the Proposed Action. There would be same number of WTGs and the same number of long term operations and maintenance staff vehicles necessary as described under the Proposed Action.

4.14.4 No-Action Alternative

Under the No-Action Alternative, the BLM would not issue a ROW grant for the construction and operation of WTG facilities in the project area. Impacts to air quality would continue to be subject to existing conditions and trends. Casual vehicle travel on unpaved roads and wind blowing over un-vegetated areas would continue to result in increased dust and PM.

5.0 CUMULATIVE IMPACTS

Council on Environmental Quality (CEQ) regulations for implementing NEPA define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFA) regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

BLM’s NEPA Handbook states that the purpose of the cumulative effects analysis is to ensure the decision-makers consider the full range of the consequences of the Proposed Action, alternatives to the Proposed Action, and No-Action Alternative (BLM 2008c). Those resources that would be directly or indirectly affected by the Proposed Action, Alternate Development Alternative, and No-Action Alternative are analyzed below. If the actions under each alternative have no direct or indirect effect on a resource (as disclosed in Chapter 4, Environmental Consequences), then the cumulative impacts on that resource are not addressed below. The cumulative impacts from wind energy development projects are described in Section 6.14.1 of the PEIS: “To the extent that wind energy development projects on BLM administered lands occur at the rates and amounts projected as well as to the extent that the policies and BMPs described under the Proposed Action are applied, the impacts attributable to wind energy development would be marginal when compared with other anticipated ongoing activities” (BLM 2005:6-13). The SVWEF meets the BLM’s policy for wind energy development and applies policies and BMPs from the PEIS as described Table 6.2-1; it therefore falls within the cumulative impacts analysis in the PEIS. To the extent that wind energy development occurs as projected in the PEIS, the impacts associated with that development would be marginal, compared with other anticipated ongoing activities. A more detailed description of site-specific cumulative impacts has been prepared for the SVWEF. The geographic area of cumulative impacts analysis is generally based on the natural boundaries of the resource affected. For all resources analyzed, a review of past, present, and reasonably foreseeable future actions was completed within the Spring Valley watershed boundary, a 581,214-acre area in Spring Valley between the Schell Creek Range to the west and the Snake Range to the east (Figure 5.0-1). The Spring Valley watershed is divided into three units for management purposes: 120A (South Spring Valley), 120B (Mid Spring Valley) and 120C (North Spring Valley). The proposed project area occurs in the Mid Spring Valley watershed. In addition, although it does not occur in the watershed, because of its proximity to the proposed SVWEF, the Wilson Creek Wind project is being considered for cumulative effects on bird and bat species. For socioeconomics, the cumulative impacts analysis area is all of White Pine County. For grazing, the cumulative impacts analysis area is limited to the extent of the Bastian Creek and Majors allotments. The cumulative impact analysis area is primarily undeveloped and used for grazing, recreation, roads, ROWs, and transmission corridors.

Table 5.0-1 summarizes past, present, and reasonably foreseeable future actions. Past actions are considered those that have occurred within the past 50 years. Present actions are considered those occurring at the time of this evaluation and during implementation of this Proposed Action. Future actions are those that are in planning stages with a reasonable expectation of occurring over the anticipated life of the project, including restoration following decommissioning, or the next 40 years. These actions were identified through correspondence with the Ely BLM District Office. CEQ regulations require that the impacts of the SVWEF be considered as part of any future project’s cumulative impact analysis.

In any NEPA analysis, it is preferable to quantify the assessment of impacts on each affected resource. This is true for direct, indirect, and cumulative impacts. Where possible, the following analysis is quantified. Where quantification is not available, a meaningful and qualified judgment of cumulative effects is included to inform the public and the decision maker.

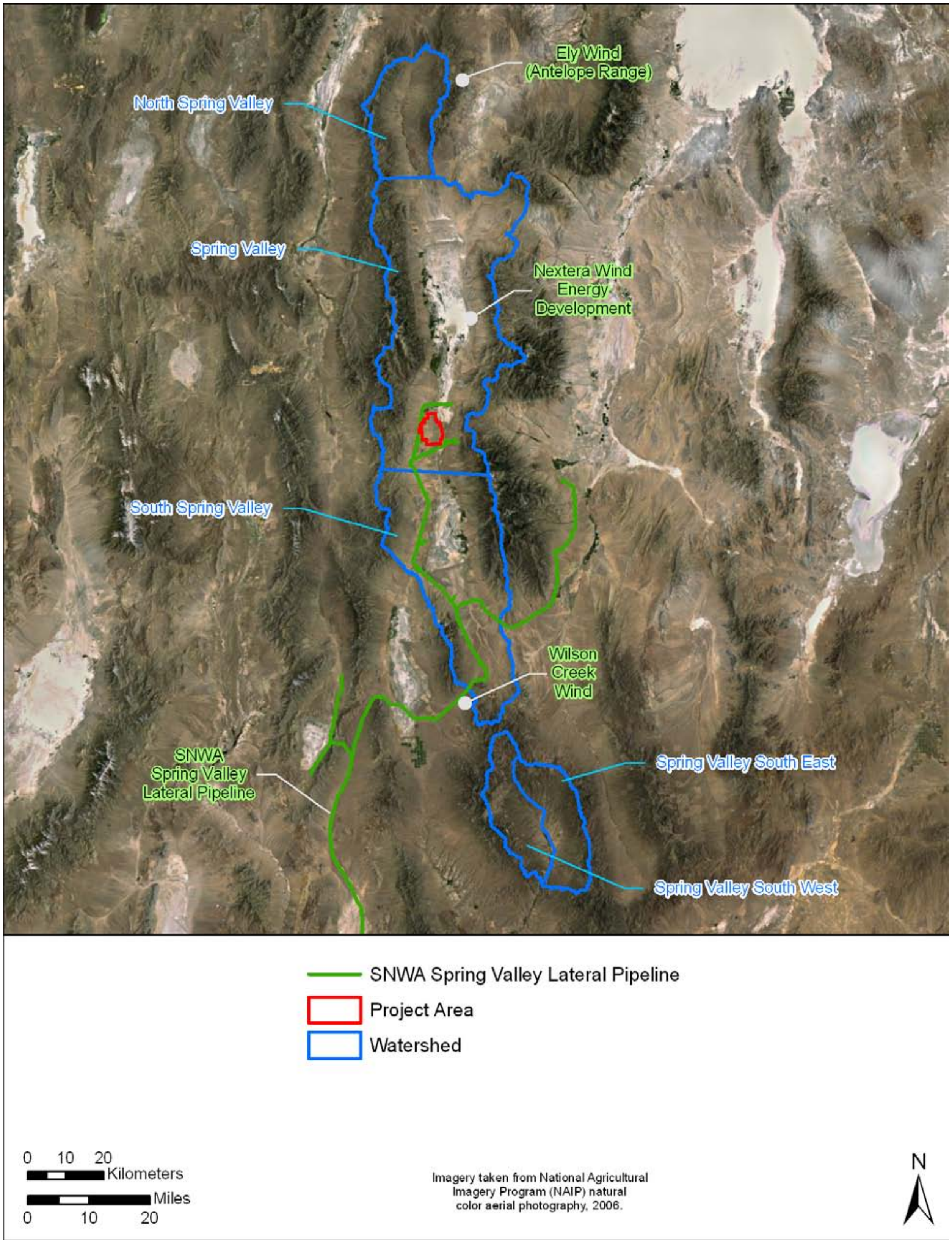

Figure 5.0-1. Cumulative impacts analysis area.

Table 5.0-1. Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impact Analyses

Action	Description	Resources Affected	Area of Impact (acres)
Past Actions			
Grazing	Grazing has occurred throughout the cumulative impacts area on BLM, U.S. Forest Service, NPS, and private lands. Several range improvements have occurred within the watershed on grazing allotments to improve grazing management.	Wildlife and special-status species	118,388
Bastian Creek Vegetation Treatment		Wildlife, special-status species, grazing	575.9
Power Transmission and Distribution Lines	There are several transmission lines crossing the project area.	Visual resources, migratory birds, wildlife, and special-status species	242 (estimated)
Gravel Pits	There are several small gravel pits throughout Spring Valley.	Visual resources, wildlife	50 (estimated)
4-Wheeler Fire and Emergency Stabilization and Rehabilitation Treatment	Wildfire and aerial seeding emergency stabilization and rehabilitation treatment in Intermountain Basins Big Sagebrush, approximately 8 miles north of the project area.	Wildlife, special-status species	2,402
Wildfire	Eleven wildfires have occurred within the Spring Valley Watershed over the past 30 years. Because fire boundaries overlap, the total acreage burned is only an estimate.	Wildlife, special-status species	13,000 (estimated)
Present Actions			
Grazing	Grazing is currently occurring throughout the cumulative impacts area on BLM, U.S. Forest Service, NPS, and private lands. Grazing can result in impacts to vegetation and soils.	Wildlife and special-status species	Same as past actions
Sacramento Pass Wildland Urban Interface Project	Mechanical thinning and removal of pinyon and juniper trees.	Wildlife, special-status species	406
Reasonably Foreseeable Future Actions			
SNWA – Groundwater Development Project	SNWA has filed a ROW application with BLM to construct a water conveyance system to develop and transmit groundwater rights, which may be granted by the State Engineer from five basins in eastern Nevada for use in the Las Vegas Valley. Only a portion of that project located within Spring Valley is considered for cumulative analysis. Within Spring Valley, SNWA has proposed to construct buried pipelines, two pumping stations, and associated power facilities. SNWA also anticipates the construction of future groundwater production facilities throughout Spring Valley, possibly within the SVWEF project area. The BLM is currently preparing an EIS to analyze the impacts of SNWA's currently proposed ROWs. The Spring Valley lateral pipeline, and Spring Valley North pumping station and substation site would be located on the west side of SR 893. The lateral pipeline would end approximately 1 mile north of Bastian Creek, and the Spring Valley North pumping station and substation site would be located approximately 0.5 mile north of the power line corridor (SNWA 2010). Full build-out of the project is anticipated to be complete by 2050. Impacts to vegetation and springs in Spring Valley are anticipated to occur within 75 years after full build-out. Therefore, the construction and operation impacts of the project are being considered for cumulative impacts in this document. Long term impacts due to pumping cannot be quantified at this time, these impacts will be addressed in future NEPA documents associated with the water pipeline and wells.t.	All	2,310 acres (69 acres for permanent facilities)

Table 5.0-1. Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Impact Analyses (Continued)

Action	Description	Resources Affected	Area of Impact (acres)
Reasonably Foreseeable Future Actions, continued			
NextEra Wind Energy Development	A wind project proposed north of the Proposed Action would be constructed on approximately 20,000 acres within their 60,000-acre study area. Based on the SVWEF, a project of that size would use approximately one hundred fifty 2-MW turbines and generate up to 300 MW. Construction, operation, maintenance, and decommissioning are anticipated to be similar to the SVWEF. It is also anticipated that this project would require an aboveground transmission line from the project south to the NV Energy 230-kV transmission line. Typical ground disturbance (short and long term) associated with a project of that size would be around 10%, totaling 2,000 acres.	All (except grazing)	2,000 (estimated)
Grazing	It is reasonable that the grazing permits continue to be active and that cattle and sheep would be permitted to graze on public lands. Range monitoring would be expected to continue. Dozens of range permit renewals will occur in subsequent years. Adjustments to livestock use to maintain quality habit for greater sage grouse and various other special-status species may be determined through the grazing permit renewal process..	Wildlife and special-status species	Same as past and present actions
Ely Wind (Antelope Range)	Nevada Wind has proposed an up to 700-MW wind project on approximately 15,000 acres 75 miles north of the project area. Based on the SVWEF, a project of that size would use approximately three hundred fifty 2-MW turbines. Construction, operation, maintenance, and decommissioning activities are anticipated to be similar to the SVWEF. Typical ground disturbance (short and long term) associated with a project of that size would be around 10% of the total project area, totaling 1,500 acres.	All (except grazing)	1,500 (estimated)
Wilson Creek Wind	Wilson Creek Wind, LLC, has proposed an up to 990-MW three-phase wind project on approximately 31,000 acres 50 miles south of the project area. Based on the SVWEF, a project of that size would use approximately four hundred ninety-five 2-MW turbines. Construction, operation, maintenance, and decommissioning activities are anticipated to be similar to the SVWEF. It is also anticipated that this project would require an aboveground transmission line from the project west to an existing transmission line. Typical ground disturbance (short and long term) associated with a project of that size would be around 10% of the total project area, totaling 3,100 acres.	All (except grazing)	3,100 (estimated)

5.1 Wildlife

The cumulative impacts to wildlife, particularly birds and bats, from the construction and operation of wind energy facilities are an issue. The types of impacts that are of particular concern include direct mortality from collisions with WTGs, loss of habitat, and displacement. Past and present actions have contributed to injury, mortality, loss of habitat, habitat fragmentation, avoidance, and displacement. In particular, aerial features such as the transmission lines crossing Spring Valley have likely contributed to collisions and resulted in increased injury and mortality of both bird and bat species, including migratory bird species.

RFFAs over the next 40 years would be expected to result in the development of 6,600 acres of other wind energy facilities similar to the SVWEF, including up to one thousand 2-MW WTGs, and the disturbance to 2,310 acres in Spring Valley as part of the SNWA groundwater development project (see Table 5.0-1). These RFFAs would result in further mortality from collisions with WTGs and new distribution towers, barotraumas to bats from WTGs, loss of habitat, habitat fragmentation, and displacement of wildlife species.

The incremental impacts of the Proposed Action and Alternate Development Alternative, when added to these other actions, would contribute to additional injury and mortality of bird and bat species resulting from collisions with WTGs and associated facilities. It is assumed that the reasonably foreseeable wind energy projects would implement BMPs and mitigation measures to reduce the risks of bird and bat mortality. Implementation of mitigation measures from the Spring Valley ABPP in a phased approach would also further reduce the risk of increased mortality for both bird and bat species at the SVWEF (see Appendix F). Therefore, the addition of the SVWEF is expected to result in only a small percent increase in cumulative avian mortality. Cumulative impacts to bats are anticipated to be similar to those described for birds; however, because of the proximity to Rose Guano Bat cave, there is the potential for a somewhat larger percent increase in mortality for Brazilian free-tailed bats.

Construction, operation, and decommissioning of the SVWEF under the Proposed Action and Alternate Development Alternative would contribute to the development occurring within the cumulative impact analysis area (see Figure 5.0-1) over the next 40 years and the alteration of the landscape, resulting in declining habitat quality from increased development, the introduction of aerial features (i.e., WTGs, transmission structures), and habitat fragmentation.

Under the Proposed Action, there would be short-term disturbance of 337 acres and long-term ground disturbance of approximately 111 acres for the SVWEF. The RFFAs within Spring Valley would result in 5,810 acres of both short and long-term ground disturbance. The cumulative ground disturbance would represent 1% of available wildlife habitat in Spring Valley. Additionally, 75 WTGs would be installed in Spring Valley for the SVWEF. The RFFAs would result in up to 995 WTGs installed in the area of analysis, with approximately 225 WTGs in Spring Valley. SVWEF WTGs would be 7.5% of the anticipated total WTGs from the RFFAs described. It should also be noted that, although currently planned, 995 turbines would exceed the amount of generation needed for the area it can service and without major changes in generation needs and transmission capacity, it would not be commercially viable to develop all 995 turbines.

5.2 Special-Status Species

Cumulative impacts to special-status species would be similar to those described for fish and wildlife in Section 4.1. The types of impacts of particular concern for special-status species include direct mortality from collisions with buildings and aerial structures such as WTGs and transmission lines, barotraumas, loss of habitat, and displacement. Past and present actions have contributed to injury, mortality, loss of habitat, habitat fragmentation, avoidance, and displacement. In particular, aerial features such as the transmission lines crossing Spring Valley have likely contributed to collisions and increased injury and mortality of special-status raptors, shorebirds, songbirds, and bat species. Additionally, past and present actions have contributed to the direct loss of habitat for the greater sage-grouse and pygmy rabbit and habitat fragmentation for those species.

RFFAs in the area of analysis over the next 40 years would result in the development of 995 WTGs (approximately 225 WTGs in Spring Valley), and 71 miles of new overhead power line in Spring Valley as part of the SNWA groundwater development project (see Table 5.0-1). These RFFAs would result in further mortality from collisions with WTGs and transmission facilities. Because of the great distances

Brazilian free-tailed bats are known to migrate and the addition of multiple wind energy facilities to the north and south of the SVWEF, there is the potential for a somewhat larger percent increase in mortality for Brazilian free-tailed bats throughout eastern Nevada. RFFAs within Spring Valley would contribute up to 5,810 acres of short- and long-term habitat loss and even greater habitat fragmentation for the greater sage-grouse and pygmy rabbit. With the addition of the Proposed Action, this represents approximately 3.3% of available greater sage-grouse habitat and 3.3% of potential pygmy rabbit habitat in Spring Valley.

The incremental impacts of the Proposed Action, when added to these other actions, would contribute to additional injury and mortality of special-status raptor, shorebird, songbird, and bat species resulting from collisions with WTGs. Research regarding avian mortalities associated with WTGs estimates that between 0.01% and 0.02% of total avian mortalities resulting from collisions with human structures can be attributed to WTGs (Erickson et al. 2001). The addition of the Proposed Action is expected to contribute a small percent increase in cumulative avian mortality. Construction, operation, and decommissioning of the SVWEF under the Proposed Action and Alternate Development Alternative would contribute to the alteration of the landscape resulting in declining habitat quality from increased development, the introduction of aerial features (i.e., WTGs, transmission structures), and habitat fragmentation. The RFFAs would result in up to 995 WTGs installed in the area of analysis. Under the Proposed Action and Alternate Development Alternative, 75 WTGs would be installed in Spring Valley. These WTGs would be 7.5% of the potential total WTGs from the RFFAs described. It should also be noted that, although currently planned, 995 turbines would exceed the amount of generation needed for the area it can service and without major changes in generation needs and transmission capacity, it would not be commercially viable to develop all 995 turbines.

5.3 Grazing Uses

The area of analysis for livestock grazing includes the Majors and Bastian Creek Grazing allotments as described in Section 3.4. Together, they consist of 118,388 acres with permitted use of 14,313 AUMs. The past and present land uses in the allotments have had a direct effect on extent of grazing in the area. Historic grazing, drought, fire suppression, utility development, roads, and dispersed recreation have encroached on lands used for grazing and reduced the amount of land and forage available for cattle on both allotments. The Bastian Creek restoration area project resulted in improved forage on 575.9 acres of the Bastian Creek Allotment.

RFFAs would result in further changes to the vegetation communities that are used for cattle grazing in the allotments. Construction of SNWA’s groundwater development project would result in disturbance to approximately 627 acres within the Majors allotment. The other RFFA wind energy developments do not occur within these allotments. Construction of the Proposed Action would result in the short- and long-term disturbance to 488 acres, which cumulatively with the groundwater development project would result in disturbance to 1,075 acres of surface disturbance in the two allotments, or 0.9% of the allotments. The majority of that disturbance would be restored and available for grazing when restoration levels described in Appendix A are achieved.

Operation of the SVWEF under the Proposed Action and Alternate Development Alternative would result in the removal of up to 111 acres available for grazing from the Allotments in the long term, including 19.4 acres in the Majors Allotment and 91.6 acres in the Bastian Creek Allotment. The groundwater development project would result in the removal of 6 acres from grazing as a result of long term facilities within these grazing allotments. Cumulatively, operation of these projects would result in the long-term loss of 117 acres within the two allotments, or 0.1% of the allotments.

5.4 Water Resources

The area of analysis for water resources is Spring Valley. Past and present land uses in Spring Valley have directly affected water resources. Construction of roads, utilities, and the development of lands for agricultural purposes have resulted in surface and vegetation disturbances that affect drainages and floodplains. Construction of these various developments has resulted in vegetation removal and leveling of landforms that has resulted in filling and re-routing of surface water drainages, alteration of floodplains, and increased sedimentation. In addition, construction of irrigation features and stock watering facilities has created surface waters. While parts of Spring Valley have been developed for human uses, with the resulting impacts to surface drainages and floodplains, large parts of Spring Valley remain undeveloped and are characterized by unaltered, or less altered, surface water flow and function.

RFFAs over the next 40 years within Spring Valley would be expected to result in the disturbance to 3,500 acres from other wind energy facilities similar to the SVWEF, and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). Development of the 3,100-acre Wilson Creek Wind Energy Facility would not contribute cumulatively to changes in surface drainages and groundwater in Spring Valley. The remaining RFFAs along with the Proposed Action, totaling approximately 6,258 acres, would cumulatively contribute to further changes to surface drainages and floodplains in Spring Valley. All ground-disturbing projects would be required to obtain necessary federal and state and permits for disturbance to drainages, and implement required mitigation and restoration measures.

5.5 Cultural Resources

The area of analysis for cumulative impacts for cultural resources is Spring Valley, as described above. The past and present land uses in Spring Valley have had a direct effect on cultural resource values in the area. Direct effects have included the loss, disturbance, theft, and burial of cultural artifacts and sites, as well as the modification and alteration of the setting of cultural sites and resources. Although surveys are conducted prior to development on state and federal lands to determine the presence of cultural resources sites eligible for listing in the NRHP (Section 106 of the NHPA), information may not be captured or sites may not be protected from disturbance on private lands. All eligible sites found would be avoided.

The development of private and public lands for multiple purposes has led to the recordation of information about previous cultures that occupied or traveled through the Spring Valley. Development of these lands has led to the collection of information about previous cultures but also the physical loss of cultural resource sites in Spring Valley.

Reasonably foreseeable development in Spring Valley over the next 40 years would be expected to result in the disturbance of 3,500 acres from other wind energy facilities similar to the SVWEF and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). These developments along with the short- and long-term disturbance from the Proposed Action and the Alternate Development Alternative would result in the cumulative disturbance of 6,258 acres and associated impacts to cultural resources in Spring Valley. Surveys prior to construction would identify the presence of cultural resources and eligible sites prior to surface disturbance for construction. These surveys would provide for mitigation measures needed to capture the information these sites provide before construction and disturbance or removal of the affected sites. While physical sites would be lost, the information these sites provide about previous cultures would be recorded before construction. Ultimately, the result would be the collection of additional information about previous cultures and sites but the loss of the physical presence of other sites. The BLM's policy is to avoid cultural resource sites and only instigate mitigation in the form of excavation when there is no way to avoid the site.

Construction, operation, and decommissioning of the SVWEF under the Proposed Action and Alternate Development Alternative would contribute to the development occurring over the next 40 years and the alteration of the landscape in Spring Valley. Under both alternatives, up to 111 acres of open rangelands would be disturbed in the long term for construction of the SVWEF. The cumulative disturbance along with the other RFFAs represents disturbance to approximately 1% of Spring Valley.

5.6 Native American Concerns

The area of analysis for cumulative impacts for Native American concerns is Spring Valley, as described above. The past and present land uses in Spring Valley have had a direct effect on Native American concerns in the area. Direct effects are similar to those described under cultural resources and have included the loss, disturbance, theft, and burial of cultural artifacts and sites, as well as the modification and alteration of the prehistoric and historic setting of the Spring Valley ACEC. The BLM completed tribal consultation to determine the types of concerns present in Spring Valley.

Reasonably foreseeable development in Spring Valley over the next 40 years would be expected to result in the short and long term disturbance to 3,500 acres from other wind energy facilities similar to the SVWEF and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). These developments along with the short- and long-term disturbance from the Proposed Action and the Alternate Development Alternative would result in the cumulative disturbance of 6,258 acres in Spring Valley. Each of these projects would undergo tribal consultation to address Native American concerns.

Construction, operation, and decommissioning of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to the development within Spring Valley occurring over the next 40 years and the alteration of the prehistoric and historic setting surrounding the Swamp Cedar ACEC. Under both alternatives, up to 111 acres of currently undisturbed lands would be altered by the SVWEF in the long term. Disturbance from the alternatives would equate to 1.6% of the anticipated cumulative landscape disturbance from all RFFAs described. The construction and presence of the SVWEF would also contribute to contrasts with the existing landscape that contributes to the relevance of the prehistoric and historic setting of the ACEC.

5.7 Visual Resources

Spring Valley is a mixture of BLM, NPS, U.S. Forest Service, and private lands. Public lands managed by BLM are used for a variety of purposes including dispersed recreation, livestock grazing, and utility corridors for electric transmission lines. These are lands that are managed for some degree of landscape change to provide for uses that alter the characteristic landscape. Lands in Spring Valley are also managed for retention of undeveloped landscapes, including GBNP, Mount Moriah Wilderness, and High Schells Wilderness. Private lands in Spring Valley are primarily used for ranching, agricultural, and residential purposes. The lands in Spring Valley are a mixture of undeveloped landscapes, interspersed with roads, utility lines, public purposes, and widely dispersed ranches and residences that alter the land and its character. The past and present land uses in Spring Valley have resulted in the current landscape character of the area.

RFFAs over the next 40 years would be expected to result in the short- and long-term disturbance of 3,500 acres from other wind energy facilities similar to the SVWEF and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). A majority of the SNWA groundwater development project disturbance would be buried facilities and temporary construction disturbance that would be restored following construction (SNWA 2010). These developments of public land would result in further alteration and development of a landscape that is a mixture of undeveloped lands, open rangelands, ranches, utilities, roads and highways.

Construction, operation, and decommissioning of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to the development occurring over the next 40 years and the alteration of the landscape in Spring Valley. Under both alternatives, up to 111 acres of open rangelands would be occupied by aboveground facilities in the long term for the SVWEF. It is estimated that the other wind energy RFFAs in Spring Valley would have up to 350 acres (10% of project areas) occupied by aboveground facilities in the long term. The SNWA groundwater development facilities would have an estimated 69 acres of aboveground facilities in Spring Valley (SNWA 2010). The cumulative long-term disturbance to the landscape in Spring Valley from the Proposed Action and the Alternate Development Alternative and RFFAs in Spring Valley would be 530 acres, which represents 0.1% of the Spring Valley watershed.

The wind energy RFFAs in Spring Valley would include lighting on WTGs as required by the FAA. SNWA groundwater development aboveground facilities would include some lighting for security purposes. These artificial light sources combined with the lighting associated with the Proposed Action and the Alternate Development Alternative are not expected to contribute to sky glow greater than the existing night sky conditions. There would be an increase in visible artificial lights to people traveling the roads through Spring Valley at night.

5.8 Noise

There are currently very few area-wide noise sources from past and present actions that are noteworthy (such as local traffic and agricultural sources).

RFFAs within Spring Valley would contribute to overall noise levels during construction and operation activities. Short-term changes in ambient noise levels would occur during construction, but construction schedule information is not yet available for the other wind energy RFFAs to determine if the projects would be under construction simultaneously. The operation of an estimated cumulative total of 575 WTGs in Spring Valley may increase ambient noise levels; however, it is not possible to quantify the increase in dBAs for these other projects because there are no specific development plans available. It is anticipated however that for each project increases in ambient noise levels would be similar to the SVWEF. The SNWA groundwater development project Spring Valley north and south pumping stations are enclosed facilities, and are expected to generate less than 52 dBA at 500 feet from the facility buildings (Lisa Luptowitz, Southern Nevada Water Authority, personal communication 2010).

Construction and operation of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to the increase in noise levels, especially during the construction phase. Under both alternatives, increases in noise levels during construction would range from 40 to 62 dBAs at 50 feet. Increases in noise levels during operation of the SVWEF would range from 40 to 55 dBAs. Construction and operation of the SVWEF under any of the alternatives would contribute noise to the area of analysis over the next 40 years, further reducing the quiet nature of the existing environment.

5.9 Transportation

Primary transportation corridors (local two-lane roadways) consist of SR 893, U.S. 93, and U.S. 50. There are also several dirt surface roads and OHV trails located on BLM lands and along the BLM-designated utility corridors. The past and present land uses have had a direct effect on the transportation in Spring Valley. However, traffic levels remain low and there is no traffic congestion.

RFFAs over the next 40 years in Spring Valley would be expected to result in the development of 575 WTGs similar to the SVWEF, and buried pipelines, pumping stations, power lines, and other facilities as part of the SNWA groundwater development project (see Table 5.0-1). Construction of each of these projects would result in short-term increases to the traffic volume, especially as a result of commuting and component delivery during construction and may result in delays in access. However, construction schedule information is not yet available for the other wind energy RFFAs to determine if the projects would be under construction simultaneously.

Construction and operation of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to the increase in traffic volume. There would be an increase of 150 vehicle trips to and from the construction site twice per day (a.m. and p.m.) in the short term. Although construction of the SVWEF under these alternatives would contribute to the increases in traffic in Spring Valley, traffic would return to existing levels during operations.

5.10 Lands Uses and Special Designations

The past and present land uses in Spring Valley have had a direct effect on the conversion of lands from one use to another. Land in Spring Valley is largely undeveloped and is characterized by open rangelands, and by areas used for grazing, utilities, recreation, and widely dispersed private ranches. The existing corridor through the project area has been converted to utility uses. Grazing still occurs on public land within Spring Valley.

RFFAs over the next 40 years in Spring Valley would be expected to result in the short- and long-term disturbance to 3,500 acres from other wind energy facilities similar to the SVWEF and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). These developments are assumed for this analysis to be compatible with BLM designated land uses in Spring Valley. None of the RFFAs would overlap ACECs.

Under the Proposed Action and the Alternate Development Alternative, the SVWEF would convert 111 acres from open rangelands to a developed site in the long term. The other RFFAs in Spring Valley would convert 419 acres to developed sites, cumulatively resulting in 530 acres of land unavailable for new land uses in Spring Valley.

5.11 Recreation

The Loneliest Highway SRMA is managed for a wide variety of recreational uses and opportunities. The SRMA within Spring Valley and the adjacent mountain ranges provide opportunities for dispersed recreation, including camping, hunting, wildlife observation, hiking, and backcountry driving. Additionally, GBNP provides opportunity for solitude and for primitive forms of recreation activities. Utilities and roads have lead to surface disturbances and clearing of vegetation, although the majority of the area remains rural and primitive in character.

RFFAs over the next 40 years in Spring Valley would be expected to result in the short- and long-term disturbance to 3,500 acres from other wind energy facilities similar to the SVWEF and 2,310 acres as part of the SNWA groundwater development project (see Table 5.0-1). These developments of public land would result in the loss of dispersed recreation opportunities within the Loneliest Highway SRMA, including hunting opportunities within Game Management Unit 111. Additionally, the development of these lands would impact the rural and primitive setting typical of Spring Valley and the surrounding mountain ranges.

Construction and operation of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to development over the next 40 years and the alteration of the characteristic rural and primitive setting and reduction of opportunities for dispersed recreation activities. Under the both alternatives, up to 111 acres would be occupied by facilities for the SVWEF in the long term. As described in Section 5.7 above, the cumulative long-term disturbance to the landscape in Spring Valley from facilities associated with the Proposed Action and the Alternate Development Alternative and RFFAs in Spring Valley would be 530 acres, which represents 0.1% of Spring Valley.

5.12 Socioeconomics

The cumulative area of analysis for socioeconomics is White Pine County. The past and present land uses in the area of analysis have had a direct effect on the socioeconomics of the county through changes to employment and tax revenue. Past and present actions have resulted in the current socioeconomic conditions in the county, as described in Chapter 3.

In general, implementation of RFFAs would create positive, temporary impacts on local economies and increased employment opportunities. RFFAs would be expected to draw partially on the available construction workforce in the county. Concurrent construction of similar (reasonably foreseeable) projects in the future could result in a demand for labor that cannot be met with local residents, which could lead to an influx of non-local workers. This population increase could impact socioeconomic conditions and public services and utility. In addition, the RFFAs would result in increased contributions to White Pine County personal property tax revenue.

Construction and operation of SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to tourism within White Pine County. Under both alternatives, SVWEF would be the first wind energy facility to be constructed in Nevada. Construction and operation of other reasonably foreseeable future wind energy facilities following the first in White Pine County would contribute incrementally to that tourism draw.

5.13 Air Quality

The cumulative area of analysis for air quality is Spring Valley. The past and present land uses in the area of analysis have had a direct effect on the air quality of Spring Valley through increased dust from emissions resulting from surface-disturbing actions. There are currently few air pollutant emissions from past and present actions that are noteworthy (such as local vehicle traffic).

RFFAs within Spring Valley would affect air quality during construction and operation activities. Short-term changes in air quality would occur during construction, but construction schedule information is not yet available for the other wind energy RFFAs to determine if the projects would be under construction simultaneously. The operation of an estimated cumulative total of 575 WTGs in Spring Valley would not contribute to GHGs. The energy produced by the SWVEF and other wind energy RFFAs would be free of both criteria air pollutants and GHGs. Accordingly, the SVWEF and wind energy RFFAs would produce a given amount of energy with fewer GHG emissions than a fossil fuel-burning power plant. It is not possible to quantify the increase in other criteria pollutants from vehicle and equipment emissions for these other projects because there are no specific development plans available. The SNWA groundwater development project Spring Valley north and south pumping stations would not result in a change in the attainment status for criteria pollutants in Spring Valley.

Construction and operation of the SVWEF under the Proposed Action and the Alternate Development Alternative would contribute to the increase in vehicle emissions. Under both alternatives, there would be an increase in emission from 150 vehicle trips to and from the construction site twice per day (a.m. and p.m.) in the short term. Although construction of the SVWEF under these alternatives would contribute to the increases in vehicle emissions in Spring Valley, traffic and emissions would return to existing levels during operations. GHG emissions from the Proposed Action (e.g., emissions related to construction and transportation) would be relatively small compared to the 8,026 million tons of CO_2-equivalent GHGs emitted in the U.S. in 2007, and the 54 billion tons of CO_2-equivalent anthropogenic GHGs emitted globally in 2004.

6.0 MITIGATION MEASURES

6.1 Mitigation Overview

Numerous design features are included as part of the Proposed Action (see Section 2.1.4), which include the ABPP, the Restoration and Weed Management Plan, and other plans presented in Appendices A though G. Additionally, the PEIS has provided an extensive list of mitigation measures described in Table 6.1-1 and BMPs (BLM 2005: Section 2.2.3.2), and the Ely RMP/FEIS Appendix F, Section 3 (BLM 2008a), provides additional mitigation measures for wind developments. Those documents have been incorporated by reference; therefore, most mitigation measures have been previously developed and analyzed and are incorporated for the Proposed Action and Alternate Development Alternative. The measures in Section 6.5 below were developed to mitigate site-specific impacts resulting from the Proposed Action and/or Alternate Development Alternative that were not addressed in the PEIS and RMP/FEIS measures or as part of the design features. If implemented, these measures in combination with the design features and relevant PEIS and RMP/FEIS measures would eliminate or substantially reduce all potential impacts as described for each resource throughout chapter four of the EA. A third-party construction monitor approved by the BLM would be employed by the proponent to ensure compliance with all BMPs, mitigation measures, and conservation measures identified.

6.2 Programmatic Environmental Impact Statement Adopted Mitigation Measures

The following table outlines the measures set forth in Chapter 5 of the PEIS and indicates which measures are incorporated into the EA, along with a rationale regarding why or why not. All of the mitigation measures from the PEIS were fully analyzed in that document. As described in the mitigation section of the PEIS (BLM 2005:5-112), an assessment of the effectiveness of the programmatic BMPs at mitigating potential impacts, along with an assessment of other aspects of the proposed Wind Energy Development Program, is presented in Chapter 6. In accordance with the PEIS, the mitigation measures of the PEIS may be consulted in determining site-specific requirements (BLM 2005), but they are not required.

6.3 Ely RMP/FEIS-adopted Mitigation Measures

The following mitigation measure is provided in the Ely RMP/FEIS (BLM 2008a:Section 4.29) to address potential impacts from loss of wildlife habitat as a result of energy production and mineral development and is incorporated herein.

Wildlife habitat should be enhanced (based on the acres disturbed/lost) in another area away from the energy or mineral project site. Enhancement would be performed on a case-by-case basis in accordance with NEPA, and funding would be provided by the Proponent. Improving wildlife habitat away from the project site would provide quality habitat for those animals that are displaced by the project. This would reduce impacts to wildlife populations in the development area. This measure has been incorporated into the ABPP (see Appendix F) as a phased mitigation measure.

Table 6.1-1. PEIS Mitigation Rationale

Resource / Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.1 Geologic Resources (BLM 2005:5-5 to 5-6)		
The size of disturbed land should be minimized as much as possible. Existing roads and borrow pits should be used as much as possible.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to Gravel Pit B outside the project area would be along an existing road.
Topsoil removed during construction should be salvaged and reapplied during reclamation. Disturbed soils should be reclaimed as quickly as possible or protective covers should be applied.	Y	Topsoil salvage and protection is described in the Restoration and Weed Management Plan (see Appendix A).
Erosion controls that comply with county, state, and federal standards should be applied. Practices such as jute netting, silt fences, and check dams should be applied near disturbed areas.	Y	An SWPPP and SPP (see Appendix D) have been prepared to ensure compliance with all county, state, and federal standards.
On-site surface runoff control features should be designed to minimize the potential for increased localized soil erosion. Drainage ditches should be constructed where necessary but held to a minimum. Potential soil erosion should be controlled at culvert outlets with appropriate structures. Catch basins, drainage ditches, and culverts should be cleaned and maintained regularly.	Y	SWPPP and SPP (see Appendix D).
Operators should identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and dip angles of geologic strata). Operators also should avoid creating excessive slopes during excavation and blasting operations. Special construction techniques should be used where applicable in areas of steep slopes, erodible soil, and stream channel/wash crossings.	Y	SWPPP and SPP (see Appendix D).
Borrow material should be obtained only from authorized and permitted sites.	Y	Gravel Pits A and B within and adjacent to the project area have been identified by a construction contractor in coordination with the BLM and would be permitted through a mineral materials permit issued by the BLM.
Access roads should be located to follow natural contours of the topography and minimize side hill cuts.	Y	Because the slope throughout the project area is less than 10%, there is no need for side hill cuts during road construction.
Foundations and trenches should be backfilled with originally excavated materials as much as possible. Excavation material should be disposed of only in approved areas to control soil erosion and to minimize leaching of hazardous constituents. If suitable, excess excavation materials may be stockpiled for use in reclamation activities.	Y	Use of fill material for reclamation and fill disposal location is described in the Proposed Action.
5.2 Paleontological Resources (BLM 2005:5-9)		
Operators should determine whether paleontological resources exist in a project area on the basis of the sedimentary context of the area, a records search for past paleontological finds in the area, and/or a paleontological survey.	Y	Paleontological resources were determined to be of low probability for the site.
A Paleontological Resources Management Plan should be developed for areas where there is a high potential for paleontological material to be present. Management options may include avoidance, removal of the fossils, or monitoring. If the fossils are to be removed, a mitigation plan should be drafted that identifies the strategy for collection of the fossils in the project area. Often, it is unrealistic to remove all of the fossils, in which case a sampling strategy can be developed. If an area exhibits a high potential but no fossils were observed during surveying, monitoring could be required. A qualified paleontologist should monitor all excavation and earthmoving in the sensitive area. Whether the strategy chosen is excavation or monitoring, a report detailing the results of the efforts should be produced.	N	Not applicable.
If an area has a strong potential for containing fossil remains and those remains are exposed on the surface for potential collection, steps should be taken to educate workers and the public on the consequences of unauthorized collection on public lands.	N	Not applicable.
5.3 Water Resources (BLM 2005:5-12 to 5-13)		
The size of cleared and disturbed lands should be minimized as much as possible. Existing roads and borrow pits should be used as much as possible.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to the Gravel Pit B outside the project area would be along an existing road.
Topsoil removed during construction should be salvaged and reapplied during reclamation. Disturbed soils should be reclaimed as quickly as possible or protective covers should be applied.	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Operators should identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and dip angles of geologic strata). Operators also should avoid creating excessive slopes during excavation and blasting operations. Special construction techniques should be used where applicable in areas of steep slopes, erodible soil, and stream channel/wash crossings.	Y	Incorporated into the SWPPP and SPP (see Appendix D).
Erosion controls that comply with county, state, and federal standards should be applied. Practices such as jute netting, silt fences, and check dams should be applied near disturbed areas.	Y	Incorporated into the SWPPP and SPP (see Appendix D).
Operators should gain a clear understanding of the local hydrogeology. Areas of groundwater discharge and recharge and their potential relationships with surface water bodies should be identified.	Y	A hydrogeology study and report describing this information was prepared (Kleinfelder 2010).
Operators should avoid creating hydrologic conduits between two aquifers during foundation excavation and other activities.	Y	A hydrogeology study and report describing this information was prepared (Kleinfelder 2010). This would be implemented during final engineering of foundation sites following site-specific geotechnical analysis.
Proposed construction near aquifer recharge areas should be closely monitored to reduce the potential for contamination of said aquifer. This may require a study to determine localized aquifer recharge areas.	N	Not applicable. A hydrogeology study and report describing this information was prepared (Kleinfelder 2010). Aquifer recharge occurs at the higher elevations of the Schell Creek and Snake ranges and along the upper alluvial fans outside the project area.
Foundations and trenches should be backfilled with originally excavated material as much as possible. Excess excavated material should be disposed of only in approved areas.	Y	Incorporated into Proposed Action and Alternate Development Alternative and into the Restoration and Weed Management Plan (see Appendix A).

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Resource / Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.3 Water Resources (BLM 2005:5-12 to 5-13)		
Existing drainage systems should not be altered, especially in sensitive areas such as erodible soils or steep slopes. When constructing stream or wash crossings, culverts or water conveyances for temporary and permanent roads should be designed to comply with county standards, or if there are no county standards, to accommodate the runoff of a 10-year storm. Potential soil erosion should be controlled at culvert outlets with appropriate structures. Catch basins, roadway ditches, and culverts should be cleaned and maintained regularly.	Y	Built into the Proposed Action and included in the SWPPP and SPP (see Appendix D).
On-site surface runoff control features should be designed to minimize the potential for increased localized soil erosion. Drainage ditches should be constructed where necessary but held to a minimum. Potential soil erosion should be controlled at culvert outlets with appropriate structures. Catch basins, drainage ditches, and culverts should be cleaned and maintained regularly.	Y	Incorporated into SWPPP and SPP (see Appendix D).
Pesticide use should be limited to non-persistent, immobile pesticides and should only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	N	Pesticides are not anticipated to be used during construction or operation of the SVWEF. If pesticides must be used, SVW would coordinate with the BLM.
5.4 Air Quality (BLM 2005: 5-19 to 5-20)		
Mitigation measures for areas subject to vehicular travel		
Access roads and on-site roads should be surfaced with aggregate materials, wherever appropriate.	Y	Addressed in development of the Proposed Action and Alternate Development Alternative. Section 2.1.1.2.6:
Dust abatement techniques should be used on unpaved, unvegetated surfaces to minimize airborne dust	Y	Addressed in development of the Proposed Action and Alternate Development Alternative.
Speed limits should be posted (e.g., 25 mph) and enforced to reduce airborne fugitive dust.	Y	Incorporated into the Traffic Management Plan (see Appendix B) as a BMP.
Mitigation measures for soil and material storage and handling		
Workers should be trained to handle construction material to reduce fugitive emissions.	Y	Incorporated herein as a project-specific BMP.
Construction materials and stockpiled soils should be covered if they are a source of fugitive dust.	Y	Incorporated herein as a project-specific BMP.
Storage piles at concrete batch plants should be covered if they are a source of fugitive dust	Y	Incorporated herein as a project-specific BMP.
Mitigation measures for clearing and disturbing land		
Disturbed areas should be minimized.	Y	Built into Proposed Action and Alternate Development Alternative.
Dust abatement techniques should be used as earthmoving activities proceeding and prior to clearing.	Y	Incorporated herein as a project-specific BMP.
Mitigation measures for earthmoving		
Dust abatement techniques should be used before excavating, backfilling, compacting, or grading.	Y	Incorporated herein as a project-specific BMP.
Disturbed areas should be revegetated as soon as possible after disturbance.	Y	The Restoration and Weed Management Plan (see Appendix A) indicates that revegetation should be initiated following the completion of earthwork.
Mitigation measures for soil loading and transport		
Soil should be moist while being loaded into dump trucks.	Y	Incorporated herein as a project-specific BMP.
Soil loads should be kept below the freeboard of the truck.	Y	Incorporated herein as a project-specific BMP.
Drop heights should be minimized when loaders dump soil into trucks.	Y	Incorporated herein as a project-specific BMP.
Gate seals should be tight on dump trucks.	Y	Incorporated herein as a project-specific BMP.
Dump trucks should be covered before traveling on public roads.	Y	Incorporated herein as a project-specific BMP.
Mitigation measure for blasting		
Dust abatement techniques should be used during blasting.	N	No blasting would occur. Not applicable.
5.5 Noise Impacts (BLM 2005:5-27)		
Proponents of a wind energy development project should take measurements to assess the existing background noise levels at a given site and compare them with the anticipated noise levels associated with the proposed project (Section 4.5.2).	N	Due to site conditions, standard existing noise estimates were used and compared with anticipated noise levels.
Noisy construction activities (including blasting) should be limited to the least noise-sensitive times of day (daytime only between 7 a.m. and 10 p.m.) and weekdays.	Y	Incorporated herein as a project-specific BMP.
Whenever feasible, different noisy activities (e.g., blasting and earthmoving) should be scheduled to occur at the same time since additional sources of noise generally do not add a significant amount of noise. That is, less frequent noisy activities would be less annoying than frequent less noisy activities.	Y	Incorporated herein as a project-specific BMP.
All equipment should have sound-control devices no less effective than those provided on the original equipment. All construction equipment used should be adequately muffled and maintained.	Y	Incorporated herein as a project-specific BMP.
All stationary construction equipment (i.e., compressors and generators) should be located as far as practicable from nearby residences.	Y	Built into Proposed Action and Alternate Development Alternative.
If blasting or other noisy activities are required during the construction period, nearby residents should be notified in advance.	Y	Incorporated herein as a project-specific BMP.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.6 Transportation Impacts (BLM 2005:5-29 to 5-30)		
Existing BLM standards regarding road design, construction, and maintenance are described in the BLM Manual 9113 (BLM 1985) and the Gold Book (. An access road siting and management plan should be prepared incorporating these standards, as appropriate. Generally, roads should be required to follow natural contours; be constructed in accordance with standards as described in BLM Manual 9113; and be reclaimed to BLM standards. As described in BLM Manual 9113, BLM roads should be designed to an appropriate standard no higher than necessary to accommodate their intended functions.	Y	Built into the Proposed Action and Alternate Development Alternative.
Existing roads should be used to the maximum extent possible, but only if in safe and environmentally sound locations. If new access roads are necessary, they should be designed and constructed to the appropriate standard no higher than necessary to accommodate their intended functions (e.g., traffic volume and weight of vehicles). Abandoned roads and roads that are no longer needed should be recontoured and revegetated.	Y	Use of existing roads has been built into the Proposed Action and Alternate Development Alternative. Standards for new road construction are incorporated into the Traffic Management Plan (see Appendix B).
A transportation plan should be developed, particularly for the transport of turbine components, main assembly cranes, and other large pieces of equipment. The plan should consider specific object sizes, weights, origin, destination, and unique handling requirements and should evaluate alternative transportation approaches (e.g., barge or rail). In addition, the process to be used to comply with unique state requirements and to obtain all necessary permits should be clearly identified.	Y	A project-specific Transportation Plan/ route study would be completed by the turbine vendor following purchase. A Traffic Management Plan, including requirements for the route study, is included in Appendix B.
A Traffic Management Plan should be prepared for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan should incorporate measures such as informational signs, flaggers when equipment may result in blocked throughways, and traffic cones to identify any necessary changes in temporary lane configuration. Signs should be placed along roads to identify speed limits, travel restrictions, and other standard traffic control information. To minimize impacts on local commuters, consideration should be given to limiting construction vehicles traveling on public roadways during the morning and late afternoon commute time.	Y	A Traffic Management Plan has been prepared and is included in Appendix B.
Project personnel and contractors should be instructed and required to adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to ensure safe and efficient traffic flow.	Y	Incorporated as a project-specific BMP in the Traffic Management Plan (see Appendix B).
During construction and operation, traffic should be restricted to the roads developed for the project. Use of other unimproved roads should be restricted to emergency situations.	Y	Incorporated as a project-specific BMP in the Traffic Management Plan (see Appendix B).
5.7 Hazardous Materials and Waste Management Impacts (BLM 2005:5-31 to 5-32)		
The BLM should be provided with a comprehensive listing of the hazardous materials that would be used, stored, transported, or disposed of during activities associated with site monitoring and testing, construction, operation, and decommissioning of a wind energy project.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Operators should develop a hazardous materials management plan addressing storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan should identify all hazardous materials that would be used, stored, or transported at the site. It should establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials. The plan should also identify requirements for notices to federal and local emergency response authorities and include emergency response plans.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D) and would be completed as part of the COM Plan.
Operators should develop a Waste Management Plan identifying the waste streams that are expected to be generated at the site and addressing hazardous waste determination procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. This plan should address all solid and liquid waste that may be generated at the site.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D) and would be completed as part of the COM Plan.
Operators should develop a spill prevention and response plan identifying where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions for each material or waste, the locations of spill response kits on-site, a procedure for ensuring that the spill response kits are adequately stocked at all times, and procedures for making timely notifications to authorities.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Operators should develop a SWPPP for the site to ensure compliance with applicable regulations and prevent off-site migration of contaminated stormwater or increased soil erosion.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D) and would be completed as part of the COM Plan.
If pesticides are to be used on-site, an integrated pest management plan should be developed to ensure that applications will be conducted within the framework of BLM and Department of the Interior policies and entail the use of only EPA-registered pesticides. Pesticide use should be limited to non-persistent, immobile pesticides and should only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	N	Pesticides are not anticipated to be used during construction or operation of the SVWEF. If pesticides must be used, SVW would coordinate with the BLM.
Secondary containment should be provided for all on-site hazardous materials and waste storage, including fuel. In particular, fuel storage (for construction vehicles and equipment) should be a temporary activity occurring only for as long as is needed to support construction and decommissioning activities. Fuel storage facilities should be removed from the site after these activities are completed.	Y	Built into the Proposed Action and Alternate Development Alternative.
Wastes should be properly containerized and removed periodically for disposal at appropriate off-site permitted disposal facilities.	Y	Built into the Proposed Action and Alternate Development Alternative.
In the event of an accidental release to the environment, the operator should document the event, including a root cause analysis, appropriate corrective actions taken, and a characterization of the resulting environmental or health and safety impacts. Documentation of the event should be provided to the BLM authorized officer and other federal and state agencies, as required.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D) and would be completed as part of the COM Plan.
Any wastewater generated in association with temporary, portable sanitary facilities should be periodically removed by a licensed hauler and introduced into an existing municipal sewage treatment facility. Temporary, portable sanitary facilities provided for construction crews should be adequate to support expected on-site personnel and should be removed at the completion of construction activities.	Y	Built into the Proposed Action and Alternate Development Alternative.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.8 Health and Safety Impacts – Occupational (BLM 2005:5-32 to 5-33)		
All construction, operation, and decommissioning activities should be conducted in compliance with applicable federal and state occupational safety and health standards (e.g., OSHA's Occupational Health and Safety Standards, 29 CFR Parts 1910 and 1926, respectively.	Y	Built into the Proposed Action and Alternate Development Alternative.
A safety assessment should be conducted to describe potential safety issues and the means that would be taken to mitigate them, including issues such as site access, construction, safe work practices, security, heavy equipment transportation, traffic management, emergency procedures, and fire control.	Y	Incorporated herein as a project-specific BMP and would be completed prior to construction by the on-site contractor.
A health and safety program should be developed to protect workers during construction, operation, and decommissioning of a wind energy project. The program should identify all applicable federal and state occupational safety standards, establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses; OSHA standard practices for safe use of explosives and blasting agents; and measures for reducing occupational electromagnetic frequency exposures), establish fire safety evacuation procedures, and define safety performance standards (e.g., electrical system standards and lighting protection standards). The program should include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers. Documentation of training and a mechanism for reporting serious accidents to appropriate agencies should be established.	Y	Incorporated herein as a project-specific BMP and would be completed as part of the COM Plan.
Electrical systems should be designed to meet all applicable safety standards (e.g., National Electrical Code and International Electrical Code).	Y	Built into the Proposed Action and Alternate Development Alternative.
For the mitigation of explosive hazards, workers should be required to comply with the OSHA standard (1910.109) for the safe use of explosives and blasting agents.	N	No blasting would occur. Not applicable.
Measures should be considered to reduce occupational electromagnetic frequencies exposures, such as backing the generator with iron to block electromagnetic frequencies, shutting down the generator when working in the vicinity, and/or limiting exposure time while the generator is running.	Y	Incorporated herein as a project-specific BMP and would be completed as part of the COM Plan.
5.8 Health and Safety Impacts – Public Safety (BLM 2005:5-33 to 5-34)		
The project health and safety program should also address protection of public health and safety during construction, operation, and decommissioning of a wind energy project. The program should establish a safety zone or setback for wind turbine generators from residences and occupied buildings, roads, ROWs, and other public access areas that is sufficient to prevent accidents resulting from various hazards during the operation of WTGs. It should identify requirements for temporary fencing around staging areas, storage yards, and excavations during construction or decommissioning activities. It should also identify measures to be taken during the operations phase to limit public access to facilities (e.g., permanent fencing should be installed around electrical substations, and turbine tower access doors should be locked to limit public access).	Y	WTG setbacks and fencing needs have been built into the Proposed Action and Alternate Development Alternative. Other health and safety program measures are incorporated herein as a project-specific BMP and would be completed as part of the COM Plan.
Operators should consult with local planning authorities regarding increased traffic during the construction phase, including an assessment of the number of vehicles per day, their size, and type. Specific issues of concern (e.g., location of school bus routes and stops) should be identified and addressed in the Traffic Management Plan.	Y	Incorporated as a project-specific BMP in the Traffic Management Plan (see Appendix B).
If operation of the wind turbines is expected to cause significant adverse impacts to nearby residences and occupied buildings from shadow flicker, low-frequency sound, or electromagnetic frequencies, site-specific recommendations for addressing these concerns should be incorporated into the project design (e.g., establishing a sufficient setback from turbines).	N	Not applicable.
The project should be planned to minimize EMI (e.g., impacts to radar, microwave, television, and radio transmissions) and comply with Federal Communications Commission regulations. Signal strength studies should be conducted when proposed locations have the potential to impact transmissions. Potential interference with public safety communication systems (e.g., radio traffic related to emergency activities) should be avoided.	Y	Built into the Proposed Action and Alternate Development Alternative.
In the event an installed wind energy development project results in EMI, the operator should work with the owner of the impacted communications system to resolve the problem. Potential mitigation may include realigning the existing antenna or installing relays to transmit the signal around the wind energy project. Additional warning information may also need to be conveyed to aircraft with onboard radar systems so that echoes from wind turbines can be quickly recognized.	Y	Built into the Proposed Action and Alternate Development Alternative.
The project should be planned to comply with FAA regulations, including lighting requirements, and to avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips.	Y	Incorporated herein and the Lighting Plan (see Appendix C). FAA and Department of Defense have provided letters approving the project.
Operators should develop a fire management strategy to implement measures to minimize the potential for a human-caused fire.	Y	Basic fire management strategies are discussed in the POD. Strategies are Incorporated herein as a project-specific BMP and would be completed as part of the COM Plan.
5.9 Ecological Resources – Birds (BLM 2005:5-65 to 5-66)		
Raptor use of the project area should be evaluated, and the project should be designed to minimize or mitigate the potential for raptor strikes. Scientifically rigorous raptor surveys should be conducted; the amount and extent of baseline data required should be determined on a project-specific basis.	Y	Surveys and data analysis are described in SWCA (2009a). Project design to minimize or mitigate raptor strikes is incorporated into the Alternate Development Alternative and is included in the ABPP (see Appendix F).
Areas with a high incidence of fog, mist, low cloud ceilings, and low visibility should be avoided.	N	Not applicable.
Turbine locations should be configured in order to avoid landscape features (including prairie dog colonies and other high-prey potential sites) known to attract raptors.	Y	Built into the Proposed Action and Alternate Development Alternative.
Turbine arrays should be configured to minimize avian mortality (e.g., orient rows of turbines parallel to known bird movements).	N	Orienting rows parallel to bird movements would result in a project that is no longer viable because turbines would miss the major wind flow.
Underground or raptor-safe transmission lines should be used to reduce collision and electrocution potential.	Y	Built into the Proposed Action and Alternate Development Alternative.
A habitat restoration plan should be developed that avoids or minimizes negative impacts to vulnerable wildlife while maintaining or enhancing habitat values for other species (e.g., avoid the establishment of habitat that attracts high densities of prey animals used by raptors).	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Road cuts, which are favored by pocket gophers and ground squirrels, should be minimized.	Y	Built into the Proposed Action and Alternate Development Alternative.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.9 Ecological Resources – Birds (BLM 2005:5-65 to 5-66), continued		
Either no vegetation or native plant species that do not attract small mammals should be maintained around the turbines.	Y	Incorporated herein. Each turbine pad would have a 75-foot-diameter gravel area maintained at the base of the turbine. All other disturbed areas would be restored as described in the Restoration and Weed Management Plan (see Appendix A).
Tubular supports rather than lattice supports should be used, with no external ladders and platforms.	Y	Built into the Proposed Action and Alternate Development Alternative.
The minimum amount of pilot warning and obstruction avoidance lighting specified by the FAA should be used, and the FAA should be consulted.	Y	Built into the Proposed Action and Alternate Development Alternative. FAA has been consulted and has provided a letter approving the project. Incorporated herein as a project-specific BMP in the Lighting Plan (see Appendix C).
Operators should determine whether active raptor nests (i.e., raptor nests used during the breeding season) are present. Buffers should be provided to avoid disturbance of nesting raptors.	Y	Incorporated into the Alternate Development Alternative.
Areas with high bird use should be avoided by micrositing alternatives (e.g., at the Foote Creek Rim project, turbines were located slightly away from the rim edge of a flat top mesa).	Y	Incorporated into the Alternate Development Alternative; Turbines and infrastructure located outside occupied and high-quality pygmy rabbit habitat and 2 miles away from active leks. Turbines located ½ mile outside of water sources and known raptor nests.
5.9 Ecological Resources – Bats (BLM 2005:5-71)		
Turbines should not be located near known bat hibernation, breeding, and maternity/nursery colonies, in migration corridors, or in flight paths between colonies and feeding areas.	N	The project is approximately 4 miles from Rose Guano Bat Cave. In place of this measure, a project-specific Mitigation Measure has been provided in Section 6.4.2 and in the ABPP (see Appendix F). Specifically, if project location leads to mortality exceeding thresholds during migration, cut-in speed increases and WTG shutdowns can be implemented throughout the entire migration period. Implementation of those measures would effectively remove the project from operation during migration and substantially reduce operational risks addressing the intent of this measure.
Bat use of the project area should be evaluated, and the project should be designed to minimize or mitigate the potential for bat strikes. Both macro- and micrositing options can be considered to minimize impacts to bats.	Y	Incorporated in the ABPP (see Appendix F).
5.9 Ecological Resources – Gallinaceous Birds (BLM 2005:5-73 to 5-74)		
Identify and avoid both local (daily) and seasonal migration routes.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Consider sage-grouse and sage habitat when designing, constructing, and using project access roads and trails.	Y	Incorporated into the Alternate Development Alternative. Includes a protective buffer of 2 miles from leks and minimizes the disturbance footprint.
Avoid, when possible, siting energy developments in breeding habitats.	N	Potential breeding habitat occurs in the project area at low frequencies; however, the project is 2 miles from the closest lek and individuals likely use habitat west of SR 893 and the nearby overhead transmission line, thereby avoiding physical barriers.
Adjust the timing of activities to minimize disturbance to sage-grouse during critical periods.	Y	Incorporated herein and covered in Section 2.1.4.3, Resource Conservation Measures.
When possible, locate energy-related facilities away from active leks or near sage-grouse habitat.	Y	Incorporated into the Alternate Development Alternative; no turbines within 2 miles of an active lek.
When possible, restrict noise levels to 10 dB above background noise levels at the lek sites.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Minimize nearby human activities when birds are near or on leks.	Y	Incorporated herein and covered in Section 2.1.4.3, Resource Conservation Measures.
As practicable, do not conduct surface-use activities within crucial sage-grouse wintering areas from December 1 through March 15.	Y	Incorporated herein; current schedule has most surface disturbance occurring outside this time frame.
Maintain sagebrush communities on a landscape scale.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Provide compensatory habitat restoration for impacted sagebrush habitat.	Y	As part of the Proposed Action (see Section 2.1.5) and Alternative Development Alternative (see Section 2.2.5), the proponent would donate funds for sagebrush, and consequently sage-grouse, habitat restoration and enhancement activities which meets the intent of this measure.
Avoid the use of pesticides at grouse breeding habitat during the brood-rearing season.	Y	Incorporated herein and covered in Section 2.1.4.3, Resource Conservation Measures.
Develop and implement appropriate measures to prevent the introduction or dispersal of noxious weeds.	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Avoid creating attractions for raptors and mammalian predators in sage-grouse habitat.	Y	Incorporated herein and the ABPP (see Appendix F).
Consider measures to mitigate impacts at off-site locations to offset unavoidable sage-grouse habitat alteration and reduction at the project site.	Y	As part of the Proposed Action (see Section 2.1.5) and Alternative Development Alternative (see Section 2.2.5), the proponent would donate funds for sagebrush, and consequently sage-grouse, habitat restoration and enhancement activities which meets the intent of this measure.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.9 Ecological Resources – Standard Management Procedures Relevant to Gallinaceous Birds (BLM 2005:5-74)		
Development of monitoring programs and adaptive management strategies.	Y	Incorporated into the ABPP (see Appendix F).
Control of invasive species,	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Prohibition or restriction of OHV activity.	Y	Incorporated herein.
Consideration of sage-grouse habitat needs when developing restoration plans.	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Avoidance of placing facilities in or next to sensitive habitats such as leks and wintering habitat.	Y	Incorporated into the Alternate Development Alternative; no turbines within 2 miles of an active lek.
Location or construction of facilities so that facility noise does not disturb grouse activities or leks.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Consolidation of facilities as much as possible (use existing ROWs).	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Initiation of restoration practices as quickly as possible following land disturbance.	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Installation of anti-perching devices on existing or new power lines in occupied sage-grouse habitat.	Y	Incorporated into the ABPP (see Appendix F). However, this measure is based on approval from the power line owner(s)/operator(s).
Design of wind energy facilities to reduce habitat fragmentations and mortality to sage-grouse.	Y	Incorporated into the Proposed Action and Alternate Development Alternative. Occurs in an area within fragmentation and uses existing roads and disturbances to limit additional fragmentation.
Construction Mitigations		
5.9.5.1 Mitigation during Site Monitoring and Testing (BLM 2005:5-78)		
Existing roads should be used to the maximum extent feasible to access a proposed project area.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to Gravel Pit B outside the project area would be along an existing road.
If new access roads are necessary, they should be designed and constructed to the appropriate standard.	Y	Standards for new road construction are incorporated into the Traffic Management Plan (see Appendix B).
Existing or new roads should be maintained to the condition needed for facility use.	Y	Standard road maintenance is incorporated into the Traffic Management Plan (see Appendix B) and would be implemented under the COM plan.
The area disturbed during the installation of MET towers (i.e., the tower footprint and its associated laydown area) should be kept to a minimum.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Individual MET towers should not be located in or near sensitive habitats or in areas where ecological resources known to be sensitive to human activities are present.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Installation of MET towers should be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors (e.g., during periods of sage-grouse nesting).	Y	Incorporated herein and covered in Section 2.1.4.3, Resource Conservation Measures.
5.9.5.2 Mitigation during Plan of Development Preparation and Project Design (BLM 2005:5-78 to 5-79)		
Operators should identify important, sensitive, or unique habitat and biota in the project vicinity and site and design the project to avoid (if possible), minimize, or mitigate potential impacts to these resources. The design and siting of the facility should follow appropriate guidance and requirements from the BLM and other resource agencies, as available and applicable.	Y	Incorporated into the Proposed Action and Alternate Development Alternative. Biological, cultural, and visual studies were completed and the project was redesigned based on their findings, including creating an Alternate Development Alternative.
The BLM and operators should contact appropriate agencies early in the planning process to identify potentially sensitive ecological resources that may be present in the area of the wind energy development.	Y	Scoping meetings were held in 2008, and additional meetings were held in the first quarter of 2010.
The operators should conduct surveys for federally or state-protected species and other species of concern within the project area.	Y	Surveys conducted for species determined appropriate by BLM biologists.
Operators should evaluate avian and bat use (including the locations of active nest sites, colonies, roosts, and migration corridors) of the project area by using scientifically rigorous survey methods.	Y	A two-year study was completed (SWCA 2009a).
The project should be planned to avoid (if possible), minimize, or mitigate impacts to wildlife and habitat.	Y	An ABPP has been prepared (see Appendix F).
Discussion should be held with the appropriate BLM Field Office staff regarding the occurrence of sensitive species or other valued ecological resources in the proposed project area.	Y	Completed throughout process.
Existing information on species and habitats in the project area should be reviewed.	Y	Completed in Biology Report (SWCA 2009b).
5.9.5.2.1 Mitigating Habitat Impacts (BLM 2005:5-79 to 5-80)		
If survey results indicate the presence of important, sensitive, or unique habitats (such as wetlands and sagebrush habitat) in the project vicinity, facility design should locate turbines, roads, and support facilities in areas least likely to impact those habitats.	Y	Incorporated into the Alternate Development Alternative.
Habitat disturbance should be minimized by locating facilities (such as utility corridors and access roads) in previously disturbed areas (i.e., locate transmission lines within or adjacent to existing power line corridors).	Y	Incorporated into the Proposed Action and Alternate Development Alternative.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.9.5.2.1 Mitigating Habitat Impacts (BLM 2005:5-79 to 5-80), continued		
Existing roads and utility corridors should be used to the maximum extent feasible.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to Gravel Pit B outside the project area would be along an existing road.
New access roads and utility corridors should be configured to avoid high-quality habitat and minimize habitat fragmentation.	Y	Incorporated into the Alternate Development Alternative.
Site access roads and utility corridors should minimize stream crossings.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
A habitat restoration management plan should be developed that identifies vegetation, soil stabilization, and erosion reduction measures and requires that restoration activities be implemented as soon as possible following facility construction activities.	Y	Incorporated into the Restoration and Weed Management Plan (see Appendix A).
Individual project facilities should be located to maintain existing stands of quality habitat and continuity between stands.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The creation of, or increase in, the amount of edge habitat between natural habitats and disturbed lands should be minimized.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; roads and collection system in same corridor to reduce number of corridors, using existing roads as much as possible, using an existing disturbed gravel source (Gravel Pit B).
To minimize impacts to aquatic habitats from increased erosion, the use of fill ramps rather than stream bank cutting should be designated for all stream crossings by access roads.	N	Not applicable.
Stream crossings should be designed to provide in-stream conditions that allow for and maintain uninterrupted movement and safe passage of fish.	N	Not applicable.
5.9.5.2.2 Mitigating Site/Wildlife Interactions (BLM 2005:5-80 to 5-81).		
Locations that are heavily used by migratory birds and bats should be avoided.	Y	The use for birds relative to other sites along ridgelines is lower; the use for bats is estimated to be lower than foraging areas south of the area where there are more water sources and better overall habitat. However, an ABPP (see Appendix F) has been prepared to address potential impacts from site use.
Permanent MET towers, transmission towers, and other facility structures should be designed to discourage their use by birds for perching or nesting.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The use of guy wires on permanent MET towers should be avoided or minimized.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Electrical supply lines should be buried in a manner that minimizes additional surface disturbance. Overhead lines should be used in cases where the burial of lines would result in further habitat disturbance.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Power lines should be configured to minimize the potential for electrocution of birds, by following established guidelines.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Operators should consider incorporating measures to reduce raptor use of the project site into the design of the facility layout (e.g., minimize road cuts and maintain non-attractive vegetation around turbines).	Y	Incorporated into the ABPP (see Appendix F).
Turbines and other project facilities should not be located in areas with known high bird usage; in known bird and/or bat migration corridors or known flight paths; near raptor nest sites; and in areas used by bats as colonial hibernation, breeding, and maternity/nursery colonies, if site studies show that they would pose a high risk to species of concern.	N	Project is in an area with several raptor nest sites nearby and a major bat hibernacula. The Alternate Development Alternative locates facilities away from raptor sites. An ABPP (see Appendix F) has been prepared to address the potential impacts associated with both birds and bats. Specifically, if project location leads to mortality exceeding thresholds during migration, cut-in speed increases and WTG shutdowns can be implemented throughout the entire migration period. Implementation of those measures would effectively remove the project from operation during migration and substantially reduce operational risks addressing the intent of this measure.
Wind energy projects should not be located in areas with a high incidence of fog and mist.	N	Not applicable.
To reduce attraction of migratory birds to turbines and towers, the need for or use of sodium vapor lights at site facilities should be minimized or avoided.	Y	Incorporated into the Lighting Plan (see Appendix C).
Turbines should be configured to avoid landscape features known to attract raptors, if site studies show that placing turbines there would pose a significant risk to raptors.	Y	The Alternate Development Alternative is configured to avoid attractant landscape features.
Mitigations During Construction		
5.9.5.3.1 Mitigating Habitat Disturbance (BLM 2005:5-81).		
The size of all disturbed areas should be minimized.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to Gravel Pit B outside the project area would be along an existing road.
Where applicable, the extent of habitat disturbance should be reduced by keeping vehicles on access roads and minimizing foot and vehicle traffic through undisturbed areas.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; would be implemented under the COM plan.
Habitat restoration activities should be initiated as soon as possible after construction activities are completed.	Y	Incorporated in the Restoration and Weed Management Plan (see Appendix A).

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.9.5.3.2 Mitigating Disturbance and Injury of Vegetation and Wildlife (BLM 2005:5-81 to 5-82)		
In consultation with staff from the BLM and other appropriate natural resource agencies, construction activities should be scheduled to avoid important periods of wildlife courtship, breeding, nesting, lambing, or calving.	Y	Incorporated herein and covered in Section 2.1.4.3, Resource Conservation Measures.
All construction employees should be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship, nesting) seasons. In addition, pets will not be permitted on-site during construction.	Y	Incorporated herein and described in Section 6.4.1.
Buffer zones should be established around raptor nests, bat roosts, and biota and habitats of concern, if site studies show that proposed facilities would pose a significant risk to avian or bat species of concern.	Y	Incorporated into the Alternate Development Alternative.
Noise-reduction devices (e.g., mufflers) should be maintained in good working order on vehicles and construction equipment.	Y	Incorporated herein as a project-specific BMP.
Explosives should be used only within specified times and at specified distances from sensitive wildlife or surface waters as established by the BLM or other federal and state agencies.	N	Not applicable.
The use of guy wires on permanent MET towers should be avoided.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
5.9.5.3.3 Mitigating Erosion and Fugitive Dust Generation (BLM 2005:5-82).		
Erosion controls that comply with county, state, and federal standards should be applied. Practices such as jute netting, silt fences, and check dams should be applied near disturbed areas.	Y	Incorporated as project-specific BMPs in the SWPPP and SPP (see Appendix D).
All areas of disturbed soil should be reclaimed using weed-free native grasses, forbs, and shrubs. Reclamation activities should be undertaken as early as possible on disturbed areas.	Y	Incorporated as project-specific BMPs in the Restoration and Weed Management Plan (see Appendix A).
Dust abatement techniques should be used on unpaved, unvegetated surfaces to minimize airborne dust.	Y	Incorporated herein as a project-specific BMP.
Construction materials and stockpiled soil should be covered if they are a source of fugitive dust.	Y	Incorporated herein as a project-specific BMP.
Erosion and fugitive dust control measures should be inspected and maintained regularly.	Y	Incorporated herein as a project-specific BMP.
5.9.5.3.4 Mitigating Fuel Spills (BLM 2005:5-82 to 5-83).		
All refueling should occur in a designated fueling area that includes a temporary berm to limit the spread of any spill.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Drip pans should be used during refueling to contain accidental releases.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Drip pans should be used under fuel pump and valve mechanisms of any bulk fueling vehicles parked at the construction site.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Spills should be immediately addressed per the appropriate spill management plan, and soil cleanup and soil removal initiated if needed.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
5.9.5.3.5 Mitigating Establishment of Invasive Vegetation (BLM 2005:5-83).		
Operators should develop a plan for control of noxious weeds and invasive plants, which could occur as a result of new surface disturbance activities at the site. The plan should address monitoring, weed identification, the manner in which weeds spread, and methods for treating infestations. The use of certified weed-free mulching should be required.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
If trucks and construction equipment are arriving from locations with known invasive vegetation problems, a controlled inspection and cleaning area should be established to visually inspect construction equipment arriving at the project area and to remove and collect seeds that may be adhering to tires and other equipment surfaces.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Access roads and newly established utility and transmission line corridors should be monitored regularly for invasive species establishment, and weed control measures should be initiated immediately upon evidence of invasive species introduction.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Fill materials that originate from areas with known invasive vegetation problems should not be used.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Certified weed-free mulch should be used when stabilizing areas of disturbed soil.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Habitat restoration activities and invasive vegetation monitoring and control activities should be initiated as soon as possible after construction activities are completed.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
All areas of disturbed soil should be reclaimed using weed-free native shrubs, grasses, and forbs.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Pesticide use should be limited to non-persistent, immobile pesticides and should only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Mitigation During Operation		
5.9.5.4.1 Mitigating Fuel Spills and Exposure to Site-Related Chemicals (BLM 2005:5-84).		
Drip pans should be used during refueling to contain accidental releases.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).
Pesticide use should be limited to non-persistent, immobile pesticides and herbicides and should only be applied in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
Spills should be immediately addressed per the appropriate spill management plan, and soil cleanup and removal initiated, if needed.	Y	Incorporated as a project-specific BMP in the SWPPP and SPP (see Appendix D).

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.9.5.4.2 Mitigating Establishment of Invasive Vegetation (BLM 2005:5-84).		
Access roads, utility and transmission line corridors, and tower site areas should be monitored regularly for invasive species establishment, and weed control measures should be initiated immediately upon evidence of invasive species introduction.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
5.9.5.4.3 Mitigating Site/Wildlife Interactions (BLM 2005:5-84 to 5-85).		
Higher-height vegetation (i.e., shrub species) should be encouraged along transmission corridors to minimize foraging in these areas by raptors to the extent local conditions will support this vegetation.	N	A new transmission corridor is not part of the proposed project.
Areas around turbines, MET towers, and other facility structures should be maintained in an unvegetated state (e.g., crushed gravel), or only vegetation that does not support wildlife use should be planted.	Y	Incorporated in the Restoration and Weed Management Plan (see Appendix A) and the ABPP (see Appendix F).
All unnecessary lighting should be turned off at night to limit attracting migratory birds.	Y	Incorporated as a project-specific BMP in the Lighting Plan (see Appendix C).
Employees, contractors, and site visitors should be instructed to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons. In addition, pets should be controlled to avoid harassment and disturbance of wildlife.	Y	Incorporated herein and described in Section 6.4.1.
Observations of potential wildlife problems, including wildlife mortality, should be reported to the BLM authorized officer immediately.	Y	Incorporated and described in the ABPP (see Appendix F).
5.9.5.5 Mitigation during Decommissioning (BLM 2005:5-85).		
All turbines and ancillary structures should be removed from the site.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Topsoil from all decommissioning activities should be salvaged and reapplied during final reclamation.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
All areas of disturbed soil should be reclaimed using weed-free native shrubs, grasses, and forbs.	Y	Incorporated as a project-specific BMP in the Restoration and Weed Management Plan (see Appendix A).
The vegetation cover, composition, and diversity should be restored to values commensurate with the ecological setting.	Y	Incorporated in the Restoration and Weed Management Plan (see Appendix A).
5.9.5.6 Mitigation for Threatened, Endangered, and Sensitive Species (BLM 2005:5-85)		
Field surveys should be conducted to verify the absence or presence of the species in the project area and especially within individual project footprints.	Y	Appropriate preconstruction surveys have been completed.
Project facilities or laydown areas should not be placed in areas documented to contain or provide important habitat for those species.	Y	Incorporated into the Alternate Development Alternative.
5.10 Land Use (BLM 2005:5-89 to 5-90)		
Wind energy projects should be planned to mitigate or minimize impacts to other land uses.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Federal and state agencies, property owners, and other stakeholders should be contacted as early as possible in the planning process to identify potentially sensitive land uses and issues, rules that govern wind energy development locally, and land use concepts specific to the region.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The Department of Defense should be consulted regarding the potential impact of a proposed wind energy project on military operations in order to identify and address any Department of Defense concerns.	Y	Incorporated into the Proposed Action and Alternate Development Alternative. FAA and the Department of Defense have provided a letter approving the project.
The FAA-required notice of proposed construction should be made as early as possible to identify any air safety measures that would be required.	Y	Incorporated into the Proposed Action and Alternate Development Alternative. FAA and the Department of Defense have provided a letter approving the project.
When feasible, a wind energy project should be sited on already altered landscapes.	N	Not feasible; elements of the facility have been sited on altered landscapes, including existing roads when possible and one gravel pit (Gravel Pit B).
To plan for efficient land use, necessary infrastructure requirements should be consolidated whenever possible, and current transmission and market access should be evaluated.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Restoration plans should be developed to ensure that all temporary use areas are restored.	Y	Incorporated into the Proposed Action and Alternate Development Alternative and the Restoration and Weed Management Plan (see Appendix A).
5.11 Visual Resources (BLM 2005:5-96 to 5-99)		
Existing mitigation measures developed by the BLM regarding VRM should be followed.	Y	Ely RMP/FEIS VRM measures are incorporated herein.
The public should be involved and informed about the visual site design elements of the proposed wind energy projects. Possible approaches include conducting public forums for disseminating information regarding wind energy development, such as design, operations, and productivity; offering organized tours of operating wind energy development projects; using computer simulation and visualization techniques in public presentations; and conducting surveys regarding public perceptions and attitudes about wind energy development.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; Photographic and computer simulations were provided at the stakeholder meetings; photographic simulations were provided at public meetings, the visual assessment report was posted to the BLM website for public review, and the public was encouraged to view the nearby Milford Wind Project as an example.
Turbine arrays and the turbine design should be integrated with the surrounding landscape. To accomplish this integration, several elements of design need to be incorporated.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; Nearby KOPs were considered when finalizing the project area. Turbines would not be visible from Cleve Creek or the residences at Sacramento Pass. Turbines are not set against the skyline, helping to integrate them with the surrounding landscape.
The operator should provide visual order and unity among clusters of turbines (visual units) to avoid visual disruptions and perceived disorder, disarray, or clutter.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; turbines are in visual order.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.11 Visual Resources (BLM 2005:5-96 to 5-99), continued		
To the extent possible given the terrain of a site, the operator should create clusters or groupings of wind turbines when placed in large numbers; avoid a cluttering effect by separating otherwise overly long lines of turbines, or large arrays; and insert breaks or open zones to create distinct visual units or groups of turbines	Y	Incorporated into the Proposed Action and Alternate Development Alternative; visual simulations show that the spacing between turbines does not lead to a "cluttering" effect.
The operator should create visual uniformity in the shape, color, and size of rotor blades, nacelles, and towers.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The use of tubular towers is recommended. Truss or lattice-style wind turbine towers with lacework, pyramidal, or prism shapes should be avoided. Tubular towers present a simpler profile and less complex surface characteristics and reflective/shading properties.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
Components should be in proper proportion to one another. Nacelles and towers should be planned to form an aesthetic unit and should be combined with particular sizes and shapes in mind to achieve an aesthetic balance between the rotor, nacelle, and tower.	Y	Incorporated into the Proposed Action and Alternate Development Alternative
Color selections for turbines should be made to reduce visual impact and should be applied uniformly to tower, nacelle, and rotor, unless gradient or other patterned color schemes are used.	Y	Incorporated into the Proposed Action and Alternate Development Alternative; the color used does the best job of blending into the surroundings. Other colors would have FAA-required lighting, which would increase visual impacts.
The operator should use non-reflective paints and coatings to reduce reflection and glare. Turbines, visible ancillary structures, and other equipment should be painted before or immediately after installation. Uncoated galvanized metallic surfaces should be avoided because they would create a stronger visual contrast, particularly as they oxidize and darken.	Y	Incorporated herein as a project-specific BMP.
Commercial messages on turbines and towers should be prohibited.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The site design should be integrated with the surrounding landscape.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
To the extent practicable, the operator should avoid placing substations or large operations buildings on high land features and along "skylines" that are visible from nearby sensitive view points. The presence of these structures should be concealed or made less conspicuous. Conspicuous structures should be designed and constructed to harmonize with desirable or acceptable characteristics of the surrounding environment.	Y	Incorporated into the Proposed Action and Alternate Development Alternative.
The operator should bury power collection cables or lines on the site in a manner that minimizes additional surface disturbance.	Y	Incorporated into the Proposed Action and Alternate Development Alternative
Commercial symbols (such as logos), trademarks, and messages should not appear on sites or ancillary structures of wind energy projects. Similarly, billboards and advertising messages should also be prohibited	Y	Incorporated into the Proposed Action and Alternate Development Alternative
Site design should be accomplished to make security lights nonessential. Such lights increase the contrast between a wind energy project and the night sky, especially in rural/remote environments, where turbines would typically be installed. Where they are necessary, security lights should be extinguished except when activated by motion detectors (e.g., only around the substation).	Y	Incorporated as a project-specific BMP in the Lighting Plan (see Appendix C).
Operators should minimize disturbance and control erosion by avoiding steep slopes and by minimizing the amount of construction and ground clearing needed for roads, staging areas, and crane pads. Dust suppression techniques should be employed in arid environments to minimize impacts of vehicular and pedestrian traffic, construction, and wind on exposed surface soils. Disturbed surfaces should be restored as closely as possible to their original contour and revegetated immediately after, or contemporaneously with construction. Action should be prompt to limit erosion and to accelerate restoring the preconstruction color and texture of the landscape.	Y	Whenever possible, existing roads, such as the main north-south access road, would be used and improved to avoid additional disturbance. Additionally, access to Gravel Pit B outside the project area would be along an existing road. Incorporated as project-specific BMPs into SWPPP and SPP and Restoration and Weed Management Plan (Appendices D and A).
The wind development site should be maintained during operation. Inoperative or incomplete turbines cause the misperception in viewers that "wind power does not work" or that it is unreliable. Inoperative turbines should be completely repaired, replaced, or removed. Nacelle covers and rotor nose cones should always be in place and undamaged. Wind energy projects should evidence environmental care, which would also reinforce the expectation and impression of good management for benign or clean power. Nacelles and towers should also be cleaned regularly (yearly, at minimum) to remove spilled or leaking fluids and the dirt and dust that would accumulate, especially in seeping lubricants. Facilities and off-site surrounding areas should be kept clean of debris, "fugitive" trash or waste, and graffiti. Scrap heaps and materials dumps should be prohibited and prevented. Materials storage yards, even if thought to be orderly, should be kept to an absolute minimum. Surplus, broken, disused materials and equipment of any size should not be allowed to accumulate.	Y	Incorporated into the Proposed Action and Alternate Development Alternative and implemented under the COM plan.
Aesthetic offsets should be considered as a mitigative option in situations where visual impacts are unavoidable, or where alternative mitigation options are only partially effective or uneconomical. An aesthetic offset is a correction or remediation of an existing condition located in the same viewshed of the proposed development that has been determined to have a negative visual or aesthetic impact. For example, aesthetic offsets could include reclamation of unnecessary roads in the area, removal of abandoned buildings, cleanup of illegal dumps or trash, or the rehabilitation of existing erosion or disturbed areas.	Y	Incorporated herein; offsets were considered and determined unnecessary.
A Decommissioning Plan should be developed, and it should include the removal of all turbines and ancillary structures and restoration/reclamation of the site.	Y	Incorporated herein; a Decommissioning Plan would be completed as part of the COM Plan; also, the Restoration and Weed Management Plan (see Appendix A) addresses site reclamation.

Table 6.1-1. PEIS Mitigation Rationale (Continued)

Mitigation	Is Mitigation Incorporated Into EA? (Y/N)	Rationale
5.12 Cultural Resources (BLM 2005:5-101 to 5-102)		
The BLM should consult with Native American governments early in the planning process to identify issues and areas of concern regarding the proposed wind energy development. Aside from the fact that consultation is required under the NHPA, consultation is necessary to establish whether the project is likely to disturb traditional cultural properties, affect access rights to particular locations, disrupt traditional cultural practices, and/or visually impact areas important to the tribe(s). Under the conditions of the nationwide BLM Programmatic Agreement, the state BLM offices should already have established a relationship with local tribal governments. A list of the federally recognized tribes for the 11-state region is available in Chapter 7.	Y	Incorporated herein, see Section 7.4.
The presence of archaeological sites and historic properties in the APE should be determined on the basis of a records search of recorded sites and properties in the area and/or an archaeological survey. The SHPO is the primary repository for cultural resource information, and most BLM Field Offices also maintain this information for lands under their jurisdiction.	Y	Completed. Records search, field survey, and report were completed (SWCA 2009d).
Archaeological sites and historic properties present in the APE should be reviewed to determine whether they meet the criteria of eligibility for listing in the NRHP. Cultural resources listed on or eligible for listing in the NRHP are considered "significant" resources.	Y	Completed; no NRHP-eligible sites would be impacted.
When any ROW application includes remnants of a National Historic Trail, is located within the viewshed of a National Historic Trail's designed centerline, or includes or is within the viewshed of a trail eligible for listing on the NRHP, the operator should evaluate the potential visual impacts to the trail associated with the proposed project and identify appropriate mitigation measures for inclusion as stipulations in the POD.	N	Not applicable.
If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a Cultural Resources Management Plan should be developed. This plan should address mitigation activities to be implemented for cultural resources found at the site. Avoidance of the area is always the preferred mitigation option. Other mitigation options include archaeological survey and excavation (as warranted) and monitoring. If an area exhibits a high potential, but no artifacts are observed during an archaeological survey, monitoring by a qualified archaeologist could be required during all excavation and earthmoving in the high-potential area. A report should be prepared documenting these activities. The Cultural Resources Management Plan also should 1) establish a monitoring program, 2) identify measures to prevent potential looting/vandalism or erosion impacts, and 3) address the education of workers and the public to make them aware of the consequences of unauthorized collection of artifacts and destruction of property on public land.	Y	All sites would be avoided. A Cultural Resources Monitoring and Discovery Plan (see Appendix E) was created to address any new sites identified during construction.
Periodic monitoring of significant cultural resources in the vicinity of development projects may help curtail potential looting/vandalism and erosion impacts. If impacts are recognized early, additional actions can be taken before the resource is destroyed.	Y	Incorporated in the Cultural Resources Monitoring and Discovery Plan (see Appendix E).
Unexpected discovery of cultural resources during construction should be brought to the attention of the responsible BLM authorized officer immediately. Work should be halted in the vicinity of the find to avoid further disturbance to the resources while they are being evaluated and appropriate mitigation measures are being developed.	Y	Incorporated in the Cultural Resources Monitoring and Discovery Plan (see Appendix E).
5.13 Economics		
No mitigation provided.	N/A	None provided.
5.14 Environmental Justice		
No mitigation provided.	N/A	None provided.

Source: BLM (2005).

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All BMPs applicable to development of wind projects presented in the Ely RMP/FEIS Appendix F, Section 1 (BLM 2008a), are incorporated by reference. Additionally, mitigation measures for wind development are presented in the Ely RMP/FEIS Appendix F, Section 3 (BLM 2008a). Most of the measures presented in that section are covered by the measures in the PEIS (see Section 6.2). Therefore, only additional measures not included in the PEIS are described in this section.

- All control and mitigation measures established for the project in the POD and resource-specific management plans that are part of the POD shall be maintained and implemented throughout the construction and operation phases, as appropriate (BLM 2008a:Appendix F, Section 3).The number and size/length of roads, temporary fences, laydown areas, and borrow areas shall be minimized (BLM 2008a:Appendix F, Section 3).
- Roads shall be located away from drainage bottoms and avoid wetlands, if practicable (BLM 2008a:Appendix F, Section 3).
- Access roads shall be located to minimize stream crossings. All structures crossing streams shall be located and constructed so that they do not decrease channel stability or increase water velocity. Operators shall obtain all applicable federal and state permits (BLM 2008a:Appendix F, Section 3).
- Ongoing ground transportation planning shall be conducted to evaluate road use, minimize traffic volume, and ensure that roads are maintained adequately to minimize associated impacts (BLM 2008a:Appendix F, Section 3).
- Inoperative turbines shall be repaired, replaced, or removed in a timely manner. Requirements to do so shall be incorporated into the due diligence provisions of the ROW authorization. Operators would be required to demonstrate due diligence in the repair, replacement, or removal of turbines; failure to do so could result in termination of the rights-of-way authorization (BLM 2008a:Appendix F, Section 3).
- Prior to the termination of the rights-of-way authorization, a Decommissioning Plan shall be developed and approved by the BLM. The Decommissioning Plan shall include a Site Reclamation Plan and monitoring program (BLM 2008a:Appendix F, Section 3). The Reclamation Plan is available in Appendix A.
- All management plans, BMPs, and stipulations develop for the construction phase shall be applied to similar activities during the decommissioning phase (BLM 2008a:Appendix F, Section 3).
- Site monitoring protocols defined in the POD shall be implemented. These would incorporate monitoring program observations and additional mitigation measures into standard operating procedures and BMPs to minimize future environmental impacts (BLM 2008a:Appendix F, Section 3).
- Results of monitoring program efforts shall be provided to the BLM authorized officer (BLM 2008a:Appendix F, Section 3).

6.4 Project-specific Mitigation Measures

Mitigation measures presented in this section were developed to address project-specific impacts that are not addressed or fully mitigated by project design features, BMPs, PEIS mitigation measures (see Section 6.2), and RMP/FEIS mitigation measures (see Section 6.3). The following mitigation measures should be completed as part of project implementation:

- If the Proposed Action is selected, relocation of pygmy rabbits by live trapping prior to construction should be considered in consultation with the USFWS and NDOW to avoid direct mortality.

- Prior to construction, a botanist approved by the BLM would identify potential habitat for Parish phacelia within 100 feet of the limits of construction disturbance and conduct site-specific surveys in those areas during the appropriate flowering season (April–August [NNHP 2001]). If individual plants are identified, turbines should be microsited outside the population. If turbines cannot be sited outside of the plant population, plants should be salvaged, as determined appropriate by the BLM's Authorized Officer.
- Following construction activities, as described in the Restoration and Weed Management Plan (see Appendix A), use soil and rock stain on restored areas to reduce the visible color contrast between bare soil and vegetation.
- Per SHPO requirements, complete detailed recordation and specific photodocumentation (prior to construction), of any eligible sites that would be visually impacted by the project will be completed to SHPO (2010) standards.

7.0 CONSULTATION AND COORDINATION

7.1 Introduction

This chapter describes the public participation and agency consultation opportunities made available by the BLM prior to and during preparation of the EA. Public participation helps disclose potential project impacts to the public and identify areas of concern. Agency consultation and coordination helps determine whether BLM actions are consistent with other agencies' land use and development plans. As part of the NEPA process, coordination with federal, state, and local agencies, Native American tribes, and the general public took place to ensure informed decision-making.

A preliminary EA was prepared and provided to the public for review and comment. Additional agency and stakeholder consultation and coordination was also conducted throughout the process. Input from that process was used to inform the preparation of the current EA, similar to scoping information.

7.2 Persons, Groups, and Agencies Consulted

- White Pine County
- U.S. Fish and Wildlife Service
- Nevada Department of Wildlife
- Great Basin National Park
- Southern Nevada Water Authority
- Delamar Valley Cattle
- Cave Valley Cattle
- Confederated Tribes of the Goshute Reservation
- Duckwater Shoshone Tribe
- Ely Shoshone Tribe

7.3 Summary of Public and Agency Participation

On Monday, October 20, 2008, the BLM Ely District staff facilitated a stakeholder meeting. The purpose of the meeting was to provide the project proponent, SVW, with the opportunity to present information on the proposed SVWEF project to stakeholders identified by the BLM and for those stakeholders to get information, ask questions and better understand the proposed project, what tasks have been completed, and what tasks remain to be completed.

Meeting materials included a PowerPoint presentation by SVW, stationary displays describing biological and cultural resource studies completed to date, a map of the project area and proposed developments, a diagram of wind turbine technology, and a visual simulation of proposed developments displayed as a video in Google Earth.

Stakeholders were given 15 minutes at the beginning of the meeting to review meeting materials and stationary displays posted in the conference room. Following an introduction by the BLM, SVW gave a brief presentation on the company, wind energy, and the proposed SVWEF project. Following the presentation, stakeholders had the opportunity to ask questions of the BLM and the proponent related to the project proposal and process. At the conclusion of the meeting, stakeholders were given additional time to review the meeting materials and stationary displays. During that time, BLM staff and SVW staff remained available to answer further questions. Information gathered during the stakeholder meeting was used to help develop the draft preliminary EA that was published on December 16, 2009.

The draft preliminary EA was made available for public input from December 16, 2009, through January 15, 2010, and public meetings were held to gather input on the document on January 5 and 6, 2009, in Ely, Nevada, and Baker, Nevada, respectively. Thirty-two comment letters containing 531 comments were received from the public, including stakeholders. In all, 386 unique comments were recorded. In addition to comments received on the draft preliminary EA, the BLM held additional meetings with commenting agencies to address specific concerns. Initial meetings with the USFWS, NDOW, and NPS were held on February 26, March 22, and March 23, 2010, respectively. All comments were reviewed and all substantive comments warranting further response as well as information gathered from agency meetings were addressed in the EA by:

- Modifying the Proposed Action;
- Developing an action alternative;
- Supplementing, improving, or modifying the analysis; or
- Making factual corrections.

Additionally, multiple meetings with the USFWS and NDOW were held to address specific avian and bat concerns and update the ABPP (see Appendix F). Individual meetings with the USFWS and NDOW were held on February 26, 2010, and again on March 31, 2010. The meetings on February 26 were held between agencies to discuss specific avian and bat concerns. The meetings on March 31 were held between the agencies and the proponent to discuss concerns and allow to proponent to provide information on past methods used to address avian and bat concerns. A joint meeting between the BLM, USFWS, NDOW, and the proponent was held on April 26, 2010, to discuss the internal draft ABPP. The proponent attended the first half of the meeting to provide additional information on the technologies proposed in the plan. The second half of the meeting was between only the agencies to discuss necessary changes to the plan. A final draft plan was prepared based on that meeting and provided to the USFWS, NDOW, and technical experts (Drs. Michael O'Farrell, Thomas Kunz, and Steven Carothers) for additional comments. The final draft ABPP (see Appendix F) was then developed based on those comments.

The revised preliminary EA was published on July 17, 2010 and made available for public input until August 18, 2010. An unsigned draft FONSI was also issued for public comment based on BLM Handbook H-1790-1, section 8.4.2. Thirty-five comment letters containing 465 comments were received from 7 government agencies, 2 businesses, 14 individuals, 10 organizations, and 2 tribes. Comments were received on the following topics:

- ACEC – 14 comments
- Air Quality – 8 comments
- Biological Resources – 209 comments
- Cultural Resources – 17 comments
- Socioeconomics – 8 comments
- Fire – 3 comments
- Human Environment – 10 comments
- Lands and Realty – 5 comments
- NEPA – 104 comments
- Noise – 2 comments
- POD – 4 comments

- Recreation – 3 comments
- Range – 2 comments
- Transportation – 6 comments
- Visual – 63 comments
- Water – 7 comments

Appendix H provides a summary of comments received and responses to comments.

7.4 Summary of Tribal Consultation

The following is a list of federal laws and EOs requiring Native American tribal consultation:

- AIRFA (16 USC 1996)—AIRFA establishes the policy of the federal government “to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian.”
- ARPA of 1979 (16 USC 470aa–mm)—ARPA requires federal agencies to consult with tribal authorities before permitting archeological excavations on tribal lands (16 USC 470cc(c)). It also mandates the confidentially of information concerning the nature and location of archeological resources, including tribal archeological resources.
- NHPA (16 USC 470 et seq.)—In carrying out its responsibilities under Section 106 of the NHPA, a federal agency shall consult with any Indian tribe or Native Hawaiian organization that attaches religious and cultural significance to properties described in subparagraph (A) (Section 101(d)(6)(B)) Implementing Regulations (36 CFR Part 800).
- NAGPRA (25 USC 3001, et. seq.)—NAGPRA requires consultation with Indian tribes, traditional religious leaders and lineal descendants of Native Americans regarding the treatment and disposition of specific kinds of human remains, funerary objects, sacred objects, and other items. Implementing Regulations (43 CFR 10)
- NEPA Implementing Regulations (40 CFR 1500)—While the statutory language of NEPA does not mention Indian tribes, the CEQ regulations and guidance do require agencies to contact Indian tribes and provide them with opportunities to participate at various stages in the preparation of an EA or EIS. Section 40 CFR 1501.2(d)(2) requires that federal agencies consult with Indian tribes early in the NEPA process. Other sections also refer to interacting with Indian tribes while implementing the NEPA process.
- EO 13175: Consultation and Coordination with Indian Tribal Governments (November 6, 2000)
- EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)—Published in the *Federal Register*, 59 FR 7629, Wednesday, February 16, 1994.
- Bureau of Land Management Manual 8120: Tribal Consultation under Cultural Resource Authorities (2004).

The BLM has complied with consultation policy for the federally recognized Native American tribal governments that may have concerns regarding the proposed SVWEF project in accordance to the laws, EOs, and regulations listed above. The following is a summary of the consultation and coordination that has occurred.

The following Native American tribes were invited to attend the SVWEF stakeholder meeting on Monday, October 20, 2008, to obtain project information:

- Ely Shoshone Tribe
- Duckwater Shoshone Tribe
- Confederated Tribes of the Goshute Indian Reservation

Two representatives of the Confederated Tribes of the Goshute Indian Reservation were present at the SVWEF stakeholder meeting. No representatives of the Ely Shoshone Tribe or the Duckwater Shoshone Tribe attended the meeting.

The BLM Ely District Office conducts quarterly Native American coordination meetings at which proposed projects are presented by the BLM to the tribal representatives present. The tribal representatives have the opportunity at that time to ask questions, make comments, and raise concerns regarding specific proposed actions. The proposed SVWEF was presented during the quarterly coordination meeting held on September 17, 2009. Representatives for the Ely Shoshone Tribe, Duckwater Shoshone Tribe, and Confederated Tribes of the Goshute Indian Reservation were present. The tribal representatives present declined to provide comments on the SVWEF at that time.

Official government to government consultation was initiated on January 5, 2010, in the form of an official letter from the BLM, Ely District, Schell Field Office Manager, Mary D'Aversa. The consultation letter officially informed Native American tribes within the Ely District Office jurisdiction and surrounding region of the proposed SVWEF project and invited them to provide information to the BLM regarding any traditional religious and/or cultural sites of importance within the proposed project area. The letter was prepared and submitted in compliance with EO 13175 Consultation and Coordination with Indian Tribal Governments and the NHPA, Section 106, government to government Native American consultation. The letter was sent to the following tribes:

- Battle Mountain Band Council
- Cedar City Band of Paiutes
- Confederated Tribes of the Goshute Indian Reservation
- Duckwater Shoshone Tribe
- Elko Band Council
- Ely Shoshone Tribe
- Indian Peaks Band
- Kaibab Band of Paiutes Indians
- Las Vegas Paiute Tribe
- Moapa Band of Paiutes
- Paiute Indian Tribe of Utah
- Shivwits Band of Paiutes
- Skull Valley Band of Goshutes
- South Fork Band Council
- Te-Moak Tribes of the Western Shoshone Indians of Nevada
- Wells Band Council
- Yomba Shoshone Tribe
- Moapa Band of Paiutes

In response to the January 5, 2010, consultation letter, the Confederated Tribes of the Goshute Indian Reservation invited the BLM to attend their January 8, 2010, Business Council Meeting to discuss concerns regarding the proposed SVWEF. The BLM was represented by Schell Field Office Manager Mary D'Aversa, Renewable Energy Project Manager, Wells McGiffert, BLM Tribal Coordinator Elvis Wall, and Archaeologist Shawn Gibson. The tribe's primary concerns focused on impacts and possible mitigations to unanticipated discovery of possible Native American graves and the proposed Swamp Cedar Traditional Cultural Property (TCP). No other tribes provided information in response to the formal request for consultation by the BLM.

The draft *Preliminary Spring Valley Proposed Wind Energy Facility Project Environmental Assessment (DOI-BLM-NV-L020-2010-007-EA)* was issued for a 30-day comment period from December 16, 2009, through January 15, 2010, and public meetings were held to gather input on the document on January 5 and 6, 2010, in Ely, Nevada, and Baker, Nevada.

The Duckwater Shoshone Tribe provided a letter to the BLM commenting on the draft Preliminary EA. The Duckwater stated they felt the document was lacking essential information and needed to include measures to address Native American concerns. They also inquired about the steps necessary for nominating the two massacre sites located in Spring Valley to the NRHP. The issues raised by the tribe were addressed in the revised Preliminary EA by incorporation and because the comments received were submitted though the public comment process, no tribal meetings regarding the comments were held, which is consistent with how all public comments were addressed.

The Confederated Tribes of the Goshute Indian Reservation provided a letter to the BLM commenting on the draft Preliminary EA. The Goshutes stated that the project occurs where there are sacred sites and would have an adverse effect if the project altered any properties that qualify for listing in the NRHP. Additional correspondence was received by BLM through email that expressed concerns regarding the adjacent SNWA groundwater project. Issues raised by the tribe regarding the EA were addressed in the revised Preliminary EA by incorporation.

The revised *Preliminary Spring Valley Proposed Wind Energy Facility Project Environmental Assessment (DOI-BLM-NV-L020-2010-007-EA)* was issued for a 30-day public comment period from July 19 to August 18, 2010. Following the beginning of the comment period on the revised preliminary EA, the Confederated Tribes of the Goshute Indian Reservation, the Duckwater Shoshone Tribe, and the Ely Shoshone Tribe were invited by the BLM to attend a meeting at the Swamp Cedar ACEC held on July 28, 2010, to discuss the proposed Swamp Cedar TCP. The Confederated Tribes of the Goshute Indian Reservation attended and were represented by three members. The Duckwater Shoshone Tribe was present and was represented by two members. The Ely Shoshone did not attend. The BLM was represented by Schell Field Office Non-Renewable Supervisor Gary Medlyn, Tribal Coordinator Elvis Wall, Archaeologist Shawn Gibson, Student Career Experience Program Archaeologist Lorie Lesher, and Cultural Anthropology Intern Jeremy Trombley. The meeting resulted in an increased understanding by the BLM of the importance of the proposed TCP, and included the determination of a recommended boundary for the proposed TCP (pending final review) that is being completed though an independent process.

In August 2010, both the Confederated Tribes of the Goshute Indian Reservation and the Duckwater Shoshone Tribe provided letters to the BLM commenting on the revised *Preliminary Spring Valley Proposed Wind Energy Facility Project Environmental Assessment (DOI-BLM-NV-L020-2010-007-EA).* Their comments are summarized in Appendix H and have been addressed in this Final EA. In addition, the BLM replied directly to the tribes with an official letter.

7.5 List of Preparers/Reviewers

Name	Title	Affiliation	Responsibility
BLM			
Gina Jones	Ecologist/NEPA Coordinator	BLM	Project Management; NEPA Review
Wells McGiffert	Renewable Energy Project Manager	BLM	Project Management
Sheri Wysong	NEPA Coordinator	BLM	NEPA Review, Environmental Justice

Name	Title	Affiliation	Responsibility
Brenda Linnell	Realty Specialist	BLM	Lands and Realty, Socioeconomics
Dave Jacobson	Wilderness Specialist	BLM	ACECs
Shawn Gibson	Archaeologist	BLM	Cultural and Paleontological Resources, Native American Concerns, and Environmental Justice Cultural ACECs
Thomas Maeder	Wildlife Biologist	BLM	Wildlife and Special-status Species
Elvis Wall	Native American Coordinator	BLM	Native American Concerns and Environmental Justice Cultural ACECs
Elizabeth Townley	Outdoor Recreation Planner	BLM	Recreation and Visual Resources
Mindy Seal	Noxious and Invasive Weeds Coordinator	BLM	Noxious Weeds and Invasive Species
Dave Davis	Geologist	BLM	Mineral Resources
Craig Hoover	Rangeland Management Specialist	BLM	Rangeland and Grazing
Mark D'Aversa	Hydrologist	BLM	Soil Resources and Watershed
Gary Medlyn	Assistant Field Manager, Non-renewable Resources	BLM	Document Review
Zach Peterson	Forester	BLM	Forestry
Brian Amme	State Office Planning and Environmental Coordinator	BLM State Office	NEPA Review
Erin Eastvedt	State Office Renewable Energy Project Coordinator	BLM State Office	NEPA Review
Sandra Brewer	State Office Program Lead Wildlife, T&E	BLM State Office	NEPA Review
Non-BLM Preparers			
Lynn Alexander	Environmental Protection Specialist, DOE NEPA Document Manager	DOE	DOE Purpose and Need, Greenhouse Gases, Intentional Destructive Acts
Eric Koster	Project Manager	SWCA	Project Management, Document Quality Assurance/Quality Control, Final Document Production
Steve Leslie	Assistant Project Manager	SWCA	Chapters 1 and 2, Visual Resources, Recreation, Socioeconomics, and Environmental Justice
Justin Streit	Environmental Specialist/Avian Ecologist	SWCA	Wildlife, Special-status Wildlife Species, and Migratory Birds
Matt Villaneva	Environmental Specialist/Botanist	SWCA	Special-status Plant Species, Grazing
Lesley Hanson	Environmental Specialist/Biologist	SWCA	Wildlife, Special-status Wildlife Species
Michael Swink	Environmental Planner	SWCA	Prime and Unique Farmlands, ACECs, Transportation and Access
Camille Ensle	Publication Specialist	SWCA	Formatting of Document
Linda Burfitt	Publication Specialist	SWCA	Formatting of Document
Heidi Orcutt-Gachiri	Technical Editor	SWCA	Technical Editing of Document

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APPENDIX A

Restoration and Weed Management Plan

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RESTORATION AND WEED MANAGEMENT PLAN FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

U.S. Bureau of Land Management
Schell Field Office
702 North Industrial Way
Ely, Nevada 89301

and

Spring Valley Wind, LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
2820 West Charleston Boulevard, Suite 15
Las Vegas, Nevada 89102

SWCA Project No. 14417

October 2010

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1.0 INTRODUCTION

Spring Valley Wind, LLC, is proposing the development of a 150-megawatt wind-generating facility (WGF) along with associated roads, rights-of-way, and ancillary facilities within Spring Valley, which is located approximately 40 km (25 miles) southeast of Ely, Nevada. Spring Valley is situated between the Schell Creek Range to the west and the Snake Range to the east in White Pine County, Nevada (Figure 1). The project area is up to 8,565 acres and is composed of both private and federal lands. The Spring Valley WGF would be built on federal lands managed by the Bureau of Land Management (BLM) Ely District Office.

This Comprehensive Restoration and Weed Management Plan (Plan) has been developed on the principles and procedures established by the BLM, which include the practices as outlined in the Restoration Plan for Energy Projects in the Las Vegas Field Office (Native Resources 2001). This Plan is applicable to the construction of structures, permanent and temporary access roads, staging areas, and other work areas associated with this project. The intent of this Plan is to prevent unnecessary degradation of the environment during construction, reduce existing and prevent future weed infestations, restore temporary use areas, and reclaim disturbed areas so that these areas are ecologically functional and visually compatible with the surrounding environment to the greatest extent practicable.

1.1 Responsible Parties

The project proponent will have the overall responsibility of directing and monitoring the weed control and restoration efforts for the project. The construction contractor may retain the services of a subcontractor who specializes in reclamation to implement the protocols identified in this Plan during and following construction. It is anticipated that post-construction reclamation monitoring would occur concurrent with the weed control efforts outlined in this Plan.

1.2 Regulatory Requirements and Authority

Authority guiding this Plan is provided under the following:

BLM Terms and Conditions of Right-of-Way Grants and Temporary Use Permits 43 Code of Federal Regulations 2881.2

"The authorized officer shall impose stipulations which shall include, but not be limited to requirements for restoration, revegetation, and curtailment of erosion of the surface of the land [and] requirements designed to control or prevent damage to the environment (including damage to fish and wildlife habitat)...."

Federal Lands Policy Management Act Sec. 101(a)(8)

Requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition..."

Ely District Proposed Resource Management Plan

The restoration and maintenance of healthy ecological systems within watersheds is a primary focus for the future management of the Ely District.

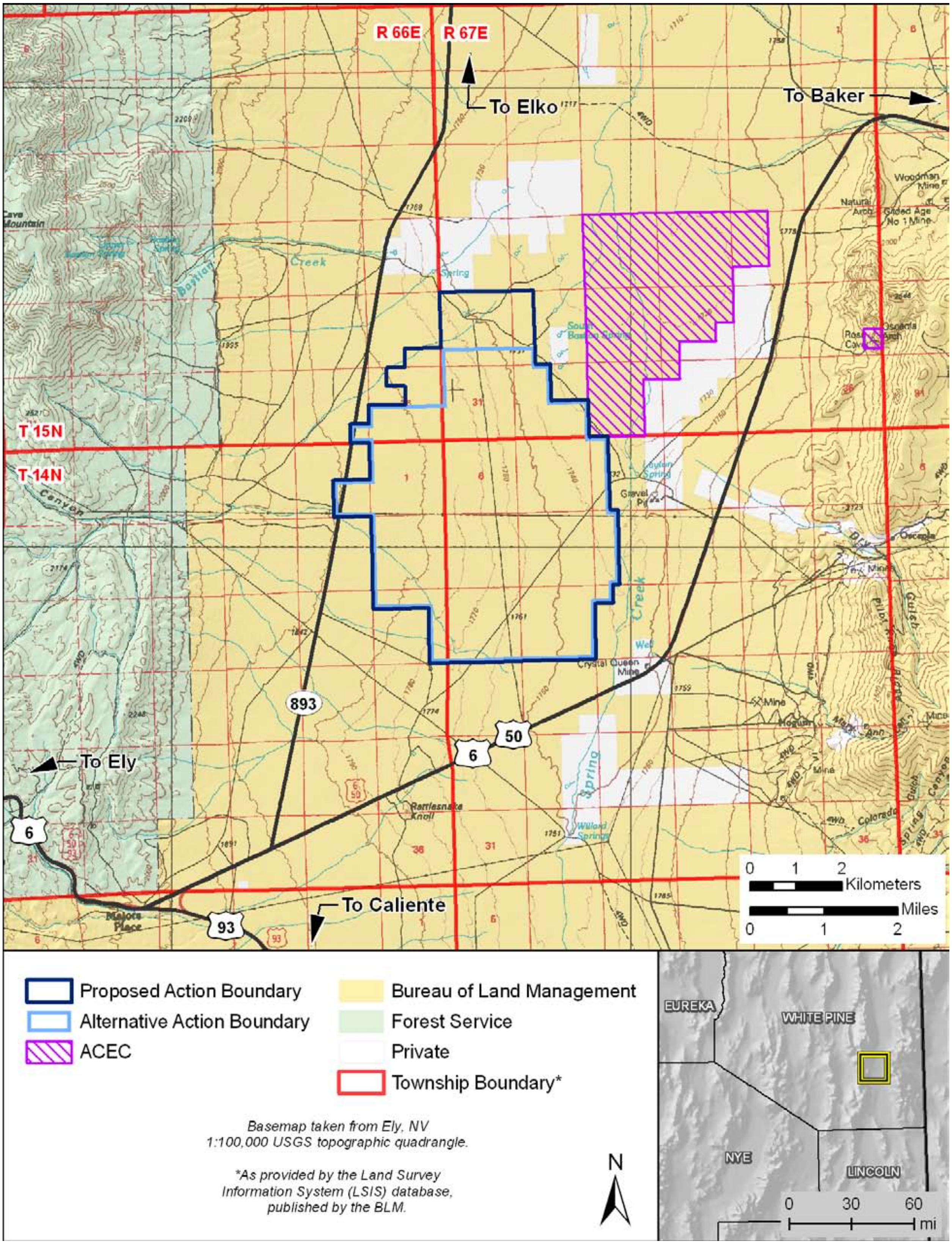

Figure 1. Site location map.

Nevada Revised Statutes (NRS) 555.005

A "noxious weed" is "any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate."

NRS 555.150

Every landowner or occupier, whether private, city, county, or federal shall cut, destroy, or eradicate all noxious weeds as required by the state quarantine officer.

In addition:

Great Basin Restoration Initiative

The 1999 BLM's Great Basin Restoration Initiative (Initiative) is a response to major wildfires, invasive weed and annual grass invasions, and deteriorating rangeland and wildlife habitat conditions. There is a growing realization of the enormous economic and ecological consequences of these interconnected landscape changes. This Initiative was developed in an attempt to restore functional native plant communities, stabilize watershed and soils, improve wildlife habitat, improve rangeland quality for wild horses and livestock, protect areas with high resource values, improve recreational opportunities, reduce invasive weeds, and reduce risks and costs of wildfires.

Nevada Guidelines for Revegetation

The 1998 Nevada State Clearinghouse represents the combined efforts of numerous Nevada state agencies and the Nevada Seedbank Coordinating Committee, all of whom are involved in land use, transportation, research, and/or natural resource management activities. The guidelines assist in the preliminary planning process for project involving revegetation. The purpose of revegetation, supported by the State of Nevada, is to return the land to conditions and productive uses similar to pre-disturbance conditions or to a desired site-specific plant community.

2.0 PROJECT DESCRIPTION

2.1 General Vegetation

Landcover vegetation data from Southwest Regional Gap (SWReGAP) (U.S. Geological Survey [USGS] 2004) indicate that five vegetation types are present in the project area (Table 1, Figure 2). Of the five different vegetation types, three constitute over 99% of the project area: Inter-Mountain Basins Mixed Salt Desert Scrub (mixed salt desert scrub), Inter-Mountain Basins Big Sagebrush Shrubland (big sagebrush shrubland), and Great Basin Xeric Mixed Sagebrush Shrubland (mixed sagebrush shrubland). The remaining 1% of vegetation is composed of Inter-Mountain Basins Greasewood Flat (greasewood flat) and Inter-Mountain Basins Pinyon-Juniper Woodland (pinyon-juniper woodland).

Table 1. SWReGAP Vegetation Types within the Project Area

SWReGAP Name	Abbreviated Name	Acreage
Inter-Mountain Basins Mixed Salt Desert Scrub	mixed salt desert scrub	4,918
Inter-Mountain Basins Big Sagebrush Shrubland	big sagebrush shrubland	2,732
Great Basin Xeric Mixed Sagebrush Shrubland	mixed sagebrush shrubland	892
Inter-Mountain Basins Greasewood Flat	greasewood flat	16
Great Basin Pinyon-Juniper Woodland	pinyon-juniper woodland	7

Source: USGS (2004).

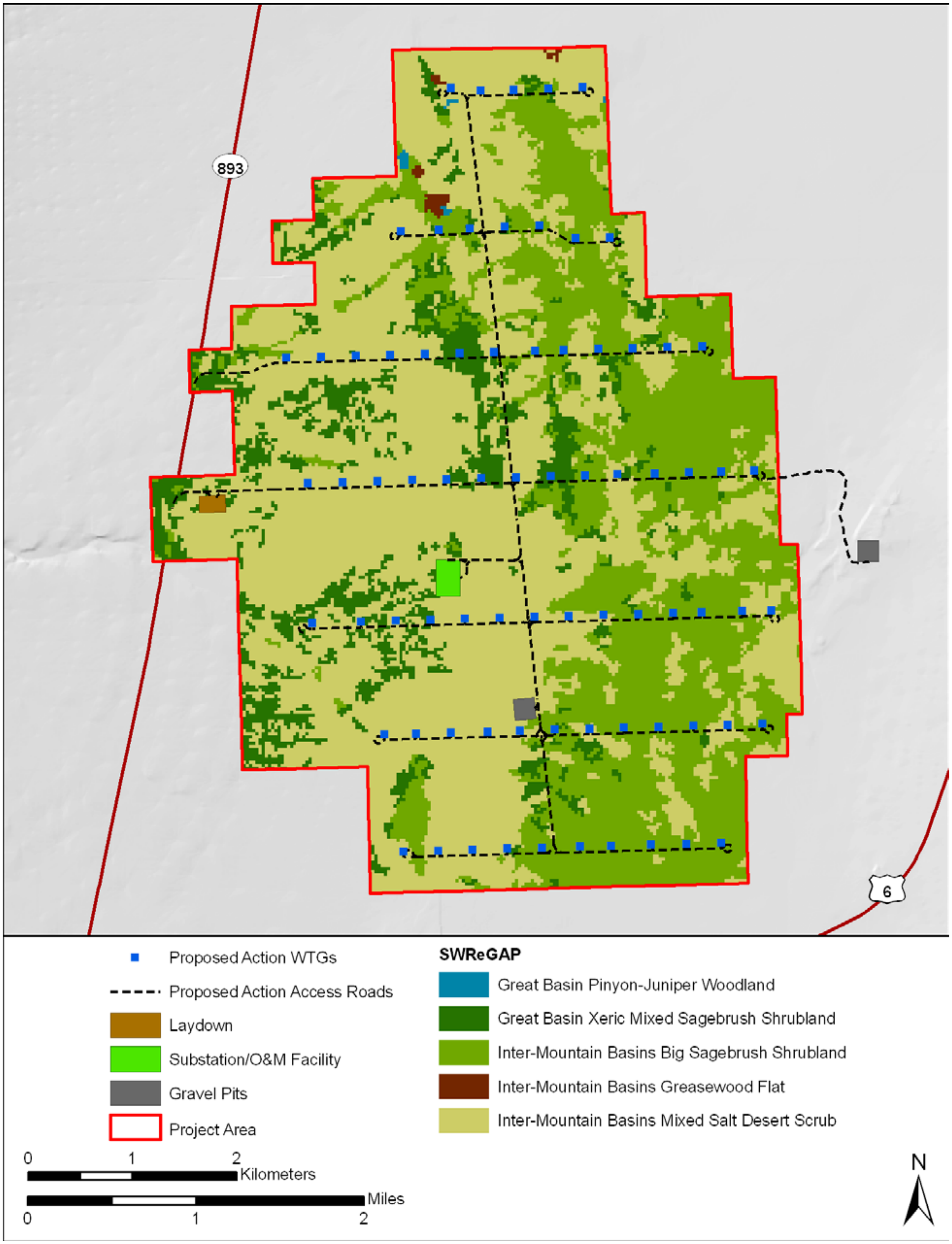

Figure 2. SWReGAP vegetation data.

The mixed salt desert scrub vegetation type is composed of open canopy shrublands with perennial grasses that occur in basins, alluvial fans, and plains within the Intermountain West. Substrates are generally saline and derived of calcium carbonate, which results in alkaline soils. Vegetation is typically open in this vegetation type and is generally dominated by a variety of saltbush species (*Atriplex* spp.) and co-dominated by a number of species such as sagebrush (*Artemisia* spp.), rubber rabbitbrush (*Chrysothamnus nauseosa*), Nevada ephedra (*Ephedra nevadensis*), hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), and others. Perennial grass species generally include Indian ricegrass (*Achnatherum hymenoides*), blue grama (*Bouteloua gracilis*), big galleta (*Pleuraphis rigida*), and others (USGS 2004).

The big sagebrush shrubland vegetation type is widespread in the western United States where it occupies basins, plains, and foothills from 1,500 to 2,300 m (4,920–7,546 feet) above mean sea level (amsl). Soils in this vegetation type are generally deep, well drained, and non-saline. This shrubland is dominated by sagebrush species, although scattered juniper (*Juniperus* spp.), greasewood (*Sarcobatus vermiculatus*), and saltbush species may be present. Perennial grasses contribute less than 25% vegetative cover and may include thickspike wheatgrass (*Elymus lanceolatus*), Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), and others (USGS 2004).

The mixed sagebrush shrubland vegetation type is restricted to the Great Basin where it occurs on flats, plains, alluvial fans, rolling hills, rocky slopes, saddles, and ridges from 1,000 to 2,600 m (3,280–8,530 feet) amsl. This vegetation type typically occurs in dry, windswept areas where soils are shallow and rocky. Shrub species are dominated by sagebrush species (*Artemisia nova* and *A. arbuscula*) and may be co-dominated by yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and Wyoming big sagebrush (*A. tridentata* ssp. *wyomingensis*). Herbaceous species are generally sparse and composed of perennial bunch grasses such as Indian ricegrass, squirrel tail (*Elymus elymoides*), and Sandberg bluegrass (USGS 2004).

The greasewood flat vegetation type is widespread in the Intermountain West. It occurs near drainages, flats, and stream terraces and forms rings around sparsely vegetated playas. These sites are flooded intermittently and accumulate salts as a result of evaporation. High water tables maintain vegetation despite high salt levels. The dominant species in this vegetation community is greasewood, which is often accompanied by saltbush species (*A. canescens* and *A. polycarpa*) and winterfat. Salt-tolerant grasses such as alkali sacaton (*Sporobolus airoides*) and saltgrass (*Distichlis spicata*) form the herbaceous layer when present (USGS 2004).

The pinyon-juniper woodland vegetation type occurs in dry mountain ranges within the Great Basin from 1,600 to 2,600 m (5,249–8530 feet) amsl. These woodlands occur in warm, dry sites on mountain slopes, mesas, plateaus, and ridges. This vegetation type is dominated by both singleleaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*), either of which can occur in either mixed or pure stands. Other associated species include mountain mahogany (*Cercocarpus ledifolius* and *C. intricatus*), sagebrush species, blackbrush (*Coleogyne ramosissima*), Gambel oak (*Quercus gambelii*), and others. Perennial bunch grasses form the understory and include needle and thread (*Hesperostipa comata*), Idaho fescue, Sandberg bluegrass, and others (USGS 2004).

2.2 Noxious and Invasive Weeds

Specific surveys for noxious weeds were not conducted within the project area. Geographic information system (GIS) data for noxious and invasive plant species were provided to SWCA Environmental Consultants (SWCA) biologists by Bonnie Million of the BLM Ely District Office (Figure 3). These data, in conjunction with observational field data, indicate that 10 species of noxious and invasive weeds have been recorded within the project area and the surrounding 3.2-km (2-mile) buffer (Table 2). This buffer was included for the Noxious Weed Risk Assessment because construction vehicles and equipment could travel through at least some of these populations as they enter and leave the project area; therefore, preventive measures will be needed to keep these vehicles and equipment from transporting seeds of noxious weeds into the project area. The risk rating for this project is high, which indicates that preventive measures for noxious and invasive weeds are necessary (SWCA 2009).

Noxious weed species are designated Category A, B, or C, based on determinations made by the State Noxious Weed Coordinator. These categories indicate both a weed's degree of establishment within Nevada, potential for eradication, and a land manager's legal obligation for treatment. Category A weeds are generally not well established in Nevada, and successful treatment options exist for these species. Generally, all Category A weed species populations are required to have treatment. Category B noxious weeds may be abundant in localized areas but generally are not well established in Nevada. Reasonable treatment options exist for these species, and Category B species are generally required to have treatment where new or small populations are identified. Category C weed species are generally established and widespread in many counties of the state, and treatment is done at the discretion of state quarantine officer. The authority for treatment of noxious weeds is provided by NRS 555.150–180.

BLM noxious weed inventory data indicate that no known noxious weed infestations are located within the project area; however, seven noxious weed species are located within a 3.2-km (2-mile) buffer (see Table 2). These species include spotted knapweed (*Centaurea stoebe* ssp. *micranthus*), a Category A species; three Category B noxious weed species—Russian knapweed (*Acroptilon repens*), musk thistle (*Carduus nutans*), and Scotch thistle (*Onopordum acanthium*); and three Category C weed species—Canada thistle (*Cirsium arvense*), hoary cress (*Lepidium draba*), and saltcedar (*Tamarix ramosissima*). While noxious weed species located outside the project area are not required for treatment, best management practices (BMPs) will be employed in order to prevent these species from becoming established in the project area.

Invasive species within the project area include cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), and Russian thistle (*Salsola tragus*). Populations of these species have not been mapped and therefore are not included in Figure 3. Halogeton and Russian thistle are upland species and were primarily observed by SWCA biologists in association with the low-growing bud sagebrush (*Picrothamnus desertorum*) community. While these invasive weed species are abundant throughout the project area, there are no laws requiring their treatment. Bull thistle (*Cirsium vulgare*) is an invasive species that is located within the 3.2-km (2-mile) buffer but is not known to occur in the project area. This species inhabits areas around wetlands and springs. While not required for treatment, BMPs will be employed in order to prevent the establishment of bull thistle within the project area, as well as to limit the spread of halogeton and Russian thistle.

Table 2. Noxious Plant Species within the Project Area and 3.2-km (1-mile) Buffer

Scientific Name	Common Name	Rank	In Project Area
Acroptilon repens	Russian knapweed	Category B	N
Bromus tectorum	Cheatgrass	Invasive	Y
Carduus nutans	Musk thistle	Category B	N
Centaurea stoebe ssp. *micranthos*	Spotted knapweed	Category A	N
Cirsium arvense	Canada thistle	Category C	N
Cirsium vulgare	Bull thistle	Invasive	N
Halogeton glomeratus	Halogeton	Invasive	Y
Lepidium draba	Hoary cress	Category C	N
Onopordum acanthium	Scotch thistle	Category B	N
Salsola tragus	Russian thistle	Invasive	Y
Tamarix ramosissima	Saltcedar	Category C	N

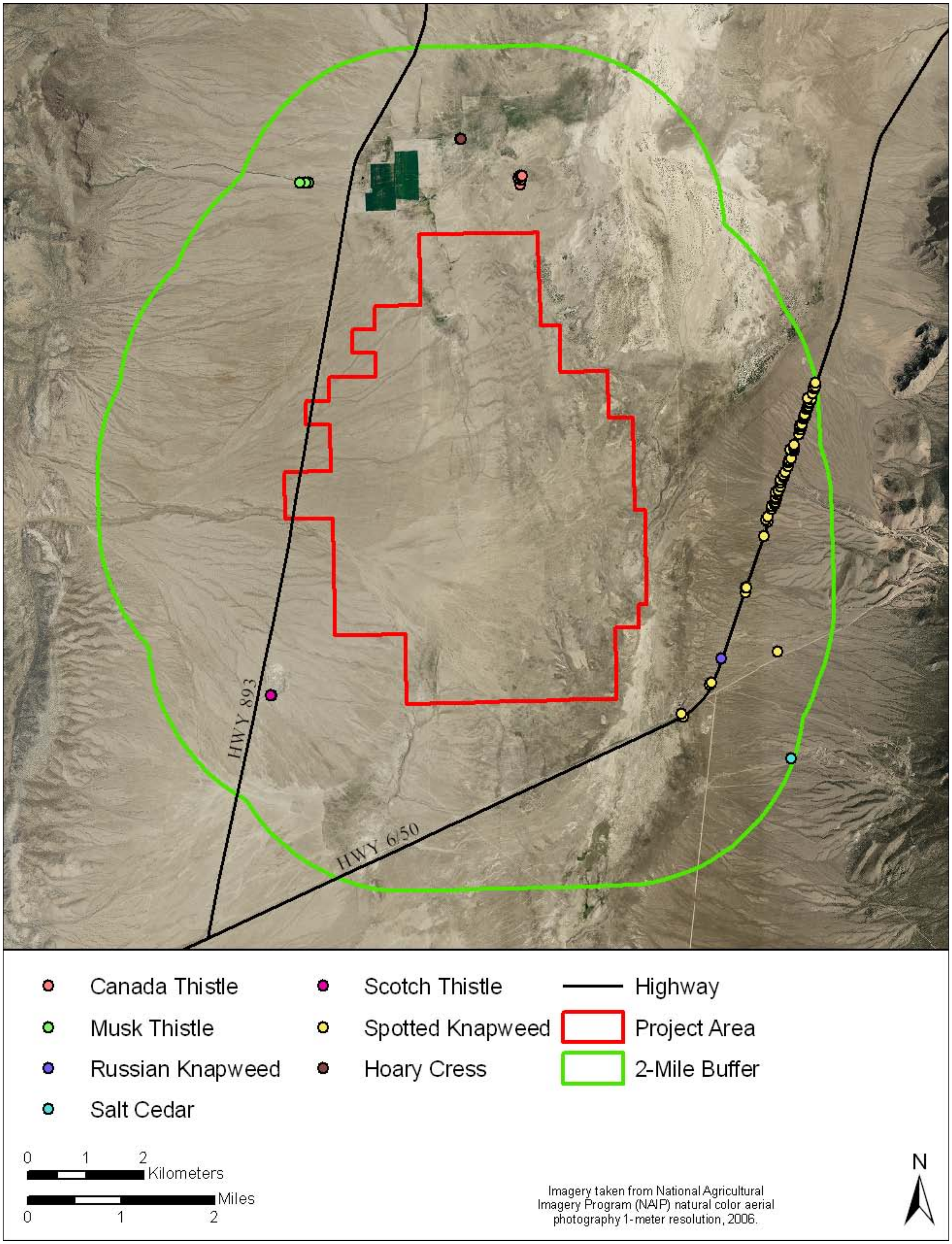

Figure 3. Noxious weed occurrences.

2.3 Restoration Levels

Four levels of restoration effort have been identified by the BLM (R1–R4) and are based on the following land management designations—R1: Special Concern Recovery Areas, R2: High Priority Recovery Areas, R3: Medium Priority Recovery Areas, and R4: Multiple Use Managed Areas. It should be noted that special and unique habitats can occur in any of the above areas and may require a higher effort of restoration to ensure their long-term viability. Additionally, these restoration categories pertain to authorized actions for approved projects and do not include trespassing or unauthorized land-disturbing actions. Details of each area are provided below.

R1: Special Concern Recovery Areas. Management of this land is oriented toward actions that promote its scenic, cultural, and biodiversity values. These areas will require state-of-the-art restoration techniques and methodologies available to achieve a “no residual impact” level for projects. Replanting would be required for 100% of disturbed areas and diversity of shrubs and perennial grasses. *There are no R1 areas within the project area*.

R2: High Priority Recovery Areas. Management on these lands is oriented toward actions that reduce human impacts to the landscape for the purposes of recovery of federally listed or special-status species, preservation of scenic values, or protection of cultural property. Examples include visual resource Classes 1 and 2 and Areas of Critical Environmental Concern. Although no federally listed species occur within the project area, both pygmy rabbit (*Brachylagus idahoensis*) and greater sage-grouse (*Centrocercus urophasianus*) are special-status wildlife species designated by BLM. Suitable habitat has been determined for restoration purposes as SWReGAP Inter-Mountain Basins Big Sagebrush Shrubland and Great Basin Xeric Mixed Sagebrush Shrubland (Figure 4). A specific seed mix has been created for this community to reflect the needs of these two species.

R3: Medium Priority Recovery Areas. Management on these lands limits, either spatially or temporally, the range of uses on lands to protect sensitive resources. Examples include herd management areas for wild horses and burros and crucial habitat for desert bighorn and mule deer. GIS data from the Resource Management Plan/Environmental Impact Statement (RMP/EIS) indicate that the project area occurs entirely outside elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) habitat. Pronghorn (*Antilocapra americana*) and its associated habitat are found throughout the project area, and herds have been observed within the project area during all seasons of the year. The largest herds observed in the project area have been observed during the winter months. The project area is located within year-round pronghorn habitat and migratory corridors delineated in the RMP/EIS. All areas outside the R2 designated areas are deemed to be R3. Seed mixes will contain specific forage plant species for browsing pronghorn for both R2 and R3 areas.

R4: Multiple Use Areas. Multiple-use areas are lands on which human activities are not precluded. Nonetheless, they support significant areas of undisturbed natural vegetation and provide important connectivity with more intensively managed areas. The project area meets parameters for R2 and R3 requirements; therefore, no R4 areas have been identified. However, Spring Valley contains grazing allotments throughout the project area, and cattle forage species will be included in all seed mixes.

2.4 Disturbance Levels

This Plan defines two types of disturbance conditions: permanent and temporary use. Temporary-use areas are broken down further into distinct levels based on the type of construction activity. All areas to be disturbed will have boundaries marked using stakes spaced to maintain a site line before beginning the activity, and all disturbances will be confined to the marked areas. All project personnel will be instructed that their activities must be confined to locations within the marked areas. Disturbance beyond the actual construction zone is prohibited without site-specific surveys. If disturbance must occur outside the marked areas, a BLM-approved biologist must survey the area to be impacted prior to disturbance.

If sensitive wildlife is found within the area to be disturbed, a BLM representative must be notified prior to disturbance. Cross-country travel and travel outside the construction zones are prohibited.

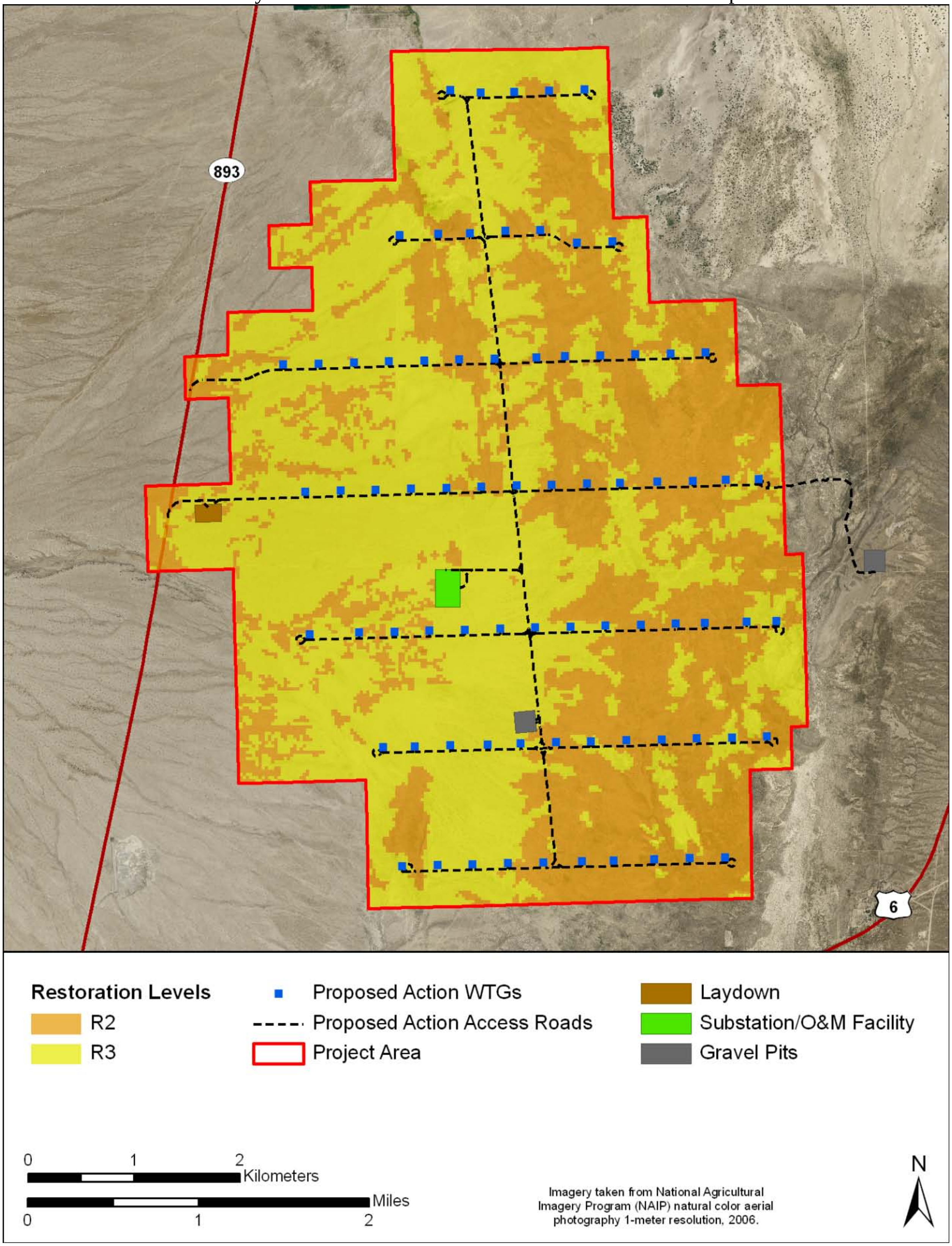

Figure 4. Restoration areas.

2.5 Permanent Use Areas

The use of these areas is long term, and the landscape will be permanently altered as a result of removing vegetation, site leveling, modifying natural drainages, fencing, and constructing facilities, towers, and other structures. Permanent disturbance also includes constructing access roads needed for regularly scheduled maintenance of facilities and structures. Vertical mulch and topsoil will be salvaged and used on restoration areas within temporarily disturbed locations. Approximately 111.1 acres will have long-term (permanent) disturbance (Table 3).

Table 3. Spring Valley WGF Components: Maximum Long-term Disturbance Summary, Based on Construction of the Proposed Action

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Long-term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	75[1]	N/A	22.5	0.003
Access roads (add 2 radar access roads – 0.23 acre each)	146,939	28	95.0	0.011
Meteorological tower	50[1]	N/A	0.1	0.000
Spring Valley substation, Osceola substation, and operations & maintenance building (includes Microwave Tower)	1,080	805	20.0	0.002
Radars	25	35	0.02	0.000
Fence[2]	34,470	12	9.5	NA
Footprint Overlap[3]	N/A	N/A	−36.0	−0.004
Total			**111.1**	**0.013**

[1] This measurement represents the diameter of the disturbance area.

[2] Outside project area but contributes to overall disturbance footprint.

[3] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

2.6 Temporary-use Areas

Temporary use is defined as using an area only for the amount of time it takes to construct the project. This will include using various types of heavy equipment to install towers or underground transmission lines, driving across public land to gain access to the project site, parking vehicles and equipment, and storing materials in designated staging areas. The following defines three levels of temporary disturbance, the impacts to the land, and the components of restoration required. The project area will include approximately 336.9 acres of temporary disturbance. Table 4 provides a list of project components and their temporary disturbance.

Table 4. Spring Valley WGF Components: Maximum Short-term Disturbance Summary, Based on Construction of the Proposed Action

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Short-term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	400[1]	N/A	217.5	0.025
Laydown, batching plant, and parking area	820	530	10.0	0.001
Access roads	146,939	40	134.9	0.016
Collection system	143,450	20	65.9	0.008

Table 4. Spring Valley WGF Components: Maximum Short-Term Disturbance Summary, Based on Construction of the Proposed Action (Continued)

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Short-Term Disturbance (acres)	% Project Area
Fiber-optic line[2]	390	20	0.18	NA
Radar fiber-optic line	500	20	0.23	0.000
Gravel source and access[3]	660	660	10.0	0.001
Footprint overlap[4]	N/A	N/A	−101.85	−0.012
Total			**336.9**	**0.039**

[1] This measurement represents the diameter of the disturbance area.

[2] Outside project area but contributes to overall disturbance footprint.

[3] Second 10.0-acre gravel source is an off-site existing disturbance and is not included in the overall disturbance acreage.

[4] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

2.6.1 Overland Drive and Crush (D-1)

Overland drive and crush is defined by a disturbance caused by accessing a site without significantly modifying the landscape. Vegetation is crushed but not cropped. Soil is compacted, but no surface soil (topsoil) is removed. Even though vegetation may be damaged and even destroyed, the topsoil and seed bank remains in place. Some crushed vegetation will likely resprout after disturbance ceases. These activities would result in minimal to moderate disturbance and will be implemented whenever vegetation and/or soil removal is not required. Areas located within the footprint during construction of the wind turbine generators, meteorological (MET) towers, and overhead distribution lines will be evaluated to determine whether and where overland drive and crush would be feasible. General restoration actions include the following.

PRE-CONSTRUCTION:

- Weed survey

POST-CONSTRUCTION:

- Earthworks: decompact terrain or erase tracks, as necessary
- Stabilize soil surface
- Reseed
- Stain soil and rock (as required to minimize visual impact)
- Install restoration signs
- Monitor and apply contingency measures as necessary

2.6.2 Clear and Cut (D-2)

Disturbance is caused by accessing the project site, but having to remove all vegetation in order to improve or provide suitable access for other equipment is what defines the second temporary disturbance category. Under this disturbance type, all vegetation is removed and soils are compacted, but no topsoil is removed, which would result in moderate disturbance. There are currently no planned areas of this category at the project.

PRE-CONSTRUCTION:

- Weed survey

- Windrow vertical mulch and large rocks alongside the disturbance

POST-CONSTRUCTION:

- Earthworks: decompact terrain and restore natural drainages and contours
- Stabilize soil surface
- Replace vertical mulch and large rocks
- Reseed
- Stain soil and rock (as required to minimize visual impacts)
- Install restoration signs
- Monitor and apply contingency measures as necessary

2.6.3 Clear and Cut with Soil Removal (D-3)

This category of disturbance is caused by removing all vegetation and excavating soil in the impact zone and will be used for the turbine foundation areas, project roads, substation and switchyard, operations and maintenance (O&M) building and adjoining yard, MET tower foundation, underground medium-voltage collection cables, and underground fiber installation. These activities result in heavy disturbance and require extensive earthwork. General restoration actions include the following.

PRE-CONSTRUCTION:

- Weed survey
- Mow vegetation then windrow and turn topsoil with vegetation to the side of disturbance. If subsurface soil excavation is also required, move subsurface soil to separate location and move surface vegetation (i.e., vertical mulch), topsoil, and subsurface soil to the side of disturbance. Note: keep topsoil with vegetation separate from subsurface soil stockpiles. Seed topsoil windrows upon completion of movement. Turn topsoil piles after six months if not used.

POST-CONSTRUCTION:

- Earthworks: replace soils (in proper order), decompact terrain, and restore natural drainages and contours
- Stabilize surface soil
- Reseed
- Stain soil and rock (as required to minimize visual impacts)
- Install restoration signs
- Monitor and apply contingency measures as necessary

3.0 RESTORATION ACTIONS

Restoration actions are applicable to all restoration levels (R1–R4) and are divided into three sections: 1) pre-construction, 2) post-construction, and 3) monitoring and contingency measures. A treatment matrix is provided in Appendix A.

3.1 Pre-construction Actions

Pre-construction actions include 1) weed surveys and control, 2) vertical mulch salvage, and 3) topsoil stockpiling. These actions are required prior to or in association with construction of both temporary and permanent disturbance.

3.1.1 Pre-construction Weed Surveys and Control

Pre-construction surveys will be completed by a BLM-approved botanist no more than two weeks prior to construction in order to determine site-specific salvage activities and existing noxious and invasive weed infestations. Weed treatment prior to earthwork or topsoil salvage will reduce the seedbank and help reduce weed infestations during restoration efforts. Specific control measures will be determined at that time.

3.1.2 Salvage Vertical Mulch and Rocks

For areas that require clearing and cutting (D2 and D3), vegetation will be mowed and mixed in to the topsoil and mechanically windrowed (material is pushed to the side using a blade or plow) to an area outside the disturbance boundary within the right-of-way. This will include all shrubs and grasses. Large rocks and boulders will also be mechanically windrowed to an area outside the disturbance boundary. Care should be taken to prevent the disturbance of the natural patina of these rocks.

3.1.3 Soil Salvage and Stockpiling

After required plants have been salvaged from the site, topsoil should be salvaged along with cut/mowed vegetation. Rocks over 10 cm (4 inches) can be removed and stockpiled outside the disturbance areas (within the right-of-way). Topsoil should be labeled and protected from erosion and inadvertent use as fill. Subsoil should be collected and stored in the same way as topsoil, and these soil layers should never be mixed. When stockpiled, soils will be treated with a tackifier to a 5-cm (2-inch) wetting depth to minimize erosion. Different soil types will be stockpiled separately (caliche and sand for example). Stockpiling will not occur during extremely wet or windy conditions, and overall handling should be kept to a minimum. Material stockpile sites will be located in previously disturbed areas to the greatest extent feasible.

3.2 Post-construction Actions

The following is a description of actions that will be implemented after the completion of construction activities: 1) earthwork, 2) seeding, 3) Permeon application, and 4) restoration signs placement.

3.2.1 Earthwork

Post-construction earthwork includes burying subsurface soils (including caliche), applying topsoil, decompacting terrain, and replacing windrowed plant material and rocks. For underground transmission lines that disturb the topsoil and subsurface soil (D3), the segregated material will be replaced back into the trench in the proper order. If significant caliche is encountered during the excavation, it will be crushed into fine material before replacing it back into the trench. Small amounts of caliche may be replaced into the trench; however, there must be sufficient finer material to achieve natural terrain contours. After recontouring to natural grade and loosening the subsurface soil, topsoil will be replaced and spread evenly over the restoration area.

In areas where soil compaction exists (D1 and D2), it will be relieved of compaction by ripping or subsoiling to the depth of compaction Depth of compaction relief will depend on site-specific conditions. Cross-ripping is preferable and care should be taken to prevent inverting the soil layers. Following decompaction, all rocks 10 cm (4 inches) and larger will be removed from the surface of the topsoil. Soil will be wet to a depth of 5 cm (2 inches) to prevent further erosion. The site will be left adequately rough after topsoil placement to provide micro-sites for seed germination and to reduce soil movement.

Replaced topsoil will be left in an unscreened condition in an effort to minimize erosion; small soil particles may be lost during the process of screening. In case of shortage, it is better to replace a shallower depth in all areas than none in a few places. Additional erosion control and soil stabilization may be required to minimize soil movement, especially for heavily sloped areas or for fine-textured soils. Vegetal-based soil binder or wood fiber tackifier will be used on any steep stockpile slopes to reduce movement and erosion. Topsoil will not be handled excessively during windy or wet conditions.

For areas that have been cleared, large rocks and boulders removed to the side of the disturbance will be placed back with the darkened side facing up in a natural appearing pattern when feasible.

3.2.2 Revegetation

SITE PREPARATION AND SEEDING

On steep slopes, the first step in site preparation will be the interception of upslope runoff from snowbank melt and rainfall by swales and other naturalized landforms. This runoff needs to be channeled away from the reclamation slopes and into native drainages using erosion control techniques such as waddles or straw bales. On slopes dominated by weedy plant species, appropriate weed treatments will help reduce the population of undesirable plant species without significantly impacting slope stability. Seeded slopes will be harrowed when possible and watered immediately. If the slope is too steep to harrow, installation of compost blankets, straw mat, or hydromulch will be used to aid in successful establishment. On slopes with at least 5 cm (2 inches) of topsoil but no significant vegetation, the soil surface will be scarified or covered in biodegradable mesh netting to help the hydromulch adhere to the slope surface. Successful, extensive native grass and forb establishment is known to take three to five years following the initial seeding. In order to effectively control erosion during this time, QuickGuard sterile triticale grass is included in the seed mix to provide a cover crop during the first year following seeding. In order to reduce the establishment of undesirable, weedy plant species, liquid fertilizer should not be added to seeded slopes.

Seeds can be drill seeded, aerially broadcast using hydroseeders, or small areas can be broadcast or hand seeded. Seeds must be covered afterward using a harrow or rake, failure to cover the seed will result in high seed predation and low germination rates. Drill seeding has the highest success rates and is the process of placing seeds directly into the soil at a specified depth using specialized equipment. It is important that sites are correctly seeded with the appropriate seed mix, because the annual grasses will quickly recover and occupy openings (Monsen et al. 2004).

Direct seeding is the simplest technique for re-establishing plant communities on disturbed sites.
To protect seeds from predation by rodents, and to increase germination, seeds will be harrowed into the soil. If broadcast or hydroseeding methods are used, seeding rates will be double the recommended seeding rates. Seeding operations will be conducted in fall or winter (September–March) following the last disturbance activity. Seed will be planted by drilling, broadcast seeding, or hydroseeding. Drill seeding will be equipped with depth bands where topography and soil conditions allow operation of equipment. Broadcast seeding will be used for inaccessible or small areas that are not suitable for mechanical methods; seeds will be raked or harrowed to ensure contact with the soil. Hydroseeding will be performed on slopes or inaccessible areas and will be equipped with a rubber-coated gear pump and paddle tank mixer. Mulch in the form of straw matting, blown straw and tackifier, hydromulch, or vertical mulch will be applied to retain moisture and increase germination rates. All seed mixes and straw mulch will be certified weed free.

Two seed mixes were developed by Ryan Timoney from Granite Seed on March 23, 2010, and refined by Brett Covlin and Craig Hoover, BLM Ely District Office, on June 23, 2010 (Table 5), to restore the approximately 336.9 acres of temporarily disturbed land. The first seed mix will be used in R2 areas to restore the habitat for pygmy rabbit and greater sage-grouse. This seed mix includes additional native browse species to accommodate pronghorn and forage species for cattle. The second seed mix will be used in saltbush communities, where soils may be more saline, and will mimic the surrounding vegetation community. This seed mix will also include native and forage species for pronghorn and cattle, respectively.

Table 5. Proposed Seed Mix Appropriate for Spring Valley R2 (sagebrush) and R3 (saltbush) Areas

Common Name	Scientific Name	R2	R3	Pure Live Seed lb/acre
Indian ricegrass	*Achnatherum hymenoides*	×	×	6–12
Crested wheatgrass	*Agropyron cristatum*	×	×	3–7
Wyoming big sagebrush	*Artemisia tridentata* var. *wyomingensis*	×	×	2–4
Black sagebrush	*Artemisia nova*	×		2–4
Fourwing saltbush	*Atriplex canesens*	×	×	10–15
Shadscale	*Atriplex confertifolia*		×	2–4
Bottlebrush squirreltail	*Elymus elymoides*	×	×	7–12
Thickspike wheatgrass	*Elymus lanceolatus*	×	×	6–11
Nevada ephedra	*Ephedra nevadensis*		×	2–4
Spiny hopsage	*Grayia spinosa*		×	2–4
Forage Kochia	*Kochia prostrata*	×	×	2-3
Winterfat	*Krascheninnikovia lanata*	×	×	2–4
Lewis flax	*Linum lewisii*	×		3–6
Sainfoin	*Onobrychis viciifolia*	×	×	5-15
Galleta	*Pleuraphis jamesii*	×	×	6-12
Sandberg bluegrass	*Poa secunda*	×		2–4
Small burnet	*Sanguisorba minor*	×	×	2-5
Greasewood	*Sarcobatus vermiculatus*		×	2–4
Sand dropseed	*Sporobolus cryptandrus*	×		1–2
Sterile rye	*Triticale*	×		10
Yarrow	*Yarrow*	×	×	0.25–0.5
Total				**30–40**

Sources: Personal communication, Ryan Timoney, Granite Seed; Brett Covlin and Craig Hoover, BLM District Office, 2010.

A sterile cross between cereal rye and wheat (QuickGuard sterile triticale hybrid) will be included in the seed mix at 10 pounds per acre. QuickGuard germinates quickly providing a cover crop that competes with annual grasses (i.e., cheatgrass), reducing the potential for weed infestation and the need for weed management. The roots of QuickGuard stabilize the soil and are used for erosion control the first year following restoration. The root and leaf litter produced will also increase organic matter and subsequent soil microbial activity. Germination is expected in one to two years for most of the perennial species, depending on seasonal precipitation patterns (Rundel and Gibson 1996).

SEASONAL TIMING OF SEEDING

Seeding should take place in the late fall when air temperatures are lower and the chance of precipitation is high. Many seeds require overwintering to scarify the seedcoat and allow them to germinate. Because some disturbance will occur in the spring, these areas could be seeded with sterile rye to compete against annual grasses or treated with a wood fiber tackifier that prevents germination. Spring seeding of native seeds can lead to excessive rodent predation and early germination, resulting in seedlings without established root systems that are unable to withstand summer temperatures and the lack of precipitation.

SOIL AND ROCK STAIN APPLICATION

Non-toxic coloring agents that mimic the dark weathering patterns on soil and rocks in arid environments may be used to reduce contrast created from disturbance. Depending on the soil and rock type, stain may be required if the soil surface contrast is high. Stain application rates and color tint will be site specific, depending on the adjacent natural landscape. The stain can be applied with backpacks or from a truck-mounted sprayer. Permeon (Product of SoilTech, Las Vegas, Nevada) or similar for rocks and ACT (Product of SoilTech, Las Vegas, Nevada) or similar for soils may be used.

ERECTING RESTORATION SIGNS

Restoration areas will have signs installed at regular intervals to deter vehicular damage to the site. The proponent will provide the restoration signs and t-posts. Sign locations will be provided to the BLM following completion of post-construction restoration procedures.

3.2.3 Monitoring and Contingency Measures

The purpose of monitoring is to obtain information for use in evaluating responses to land management practices. Successful native grass, forb, and shrub establishment is known to take four to six years following the initial seeding (Monsen et al. 2004) in good environmental conditions and proper care. For this project, up to 10 years for success is possible. A BLM-approved contractor will conduct monitoring efforts, analyze data, and report to the BLM annually until the site has been successfully restored. Annual monitoring will continue for a minimum of three years, with an additional two years if restoration efforts are not successful.

Monitoring methods for restoration are intended to be reasonable and practical with enough statistical rigor to ensure effective results within four to six years and not beyond 10 years. Methods will be designed to quantify the level of recovery for the treated sites by comparing the recovery progress with adjacent undisturbed habitat of similar soil and vegetative characteristics.

Establishing a strong monitoring program that can be easily followed and repeated will greatly assist in future efforts to make appropriate management decisions. The monitoring plan should include careful documentation of existing weed infestations and control agent release sites, designed to capture changes in plant performance and plant populations. The use of photographic and global positioning system (GPS) technology to enhance mapping efforts, capture abiotic factors, and monitor off-season conditions to better understand seasonal changes that may affect the biological control agents can provide insight into the best management techniques for combating noxious and invasive weed population. Monitoring should include disturbance, treatment, and weed mapping and can have a variety of objectives, including

- Assessing the impact of management activities
- Detecting weeds in uninfested areas
- Assessing the impact of weeds on the ecosystem
- Assessing the effects of management activities on the ecosystem
- Evaluating weed spread

Monitoring provides feedback on the efficacy of management activities. Management plans can and should be adjusted based on feedback from monitoring. Although monitoring is often restricted to small areas or plots, weed expansion or contraction across large geographic areas can be monitored by comparing maps from different years. If revegetation is not successful, the situation should be remedied and the area revegetated.

Sample statistics are a descriptive measure derived from a sample and provide estimates of population parameters. Accuracy is the closeness of a measured or computed value to its true value, and precision is the closeness of repeated measurements of the same quantity. Efficient sampling designs try to achieve high precision. To reduce variation and increase accuracy, the restoration areas should be divided into natural boundaries with similar soil types, slopes, and disturbance regimes. For example, a drive and crush area should not be included in an area that was restored following blasting and subsoil removal to bury a transmission line.

Random quadrats placed throughout the restoration area will be evaluated for species richness, percent cover, density, and frequency. The number of individual quadrats in each restoration area will be determined by conducting statistical power tests based on the size of the restoration area to evaluate variability. These data will be entered into a database software program that will allow ongoing monitoring data to be added and analyzed. Simple comparison statistics (T-tests and ANOVA) will be conducted on the variables, comparing them with adjacent intact communities (Elzinga et al. 1998).

Seeding experiments suggest that there are specific precipitation and temperature requirements in order for many desert species to germinate. If germination and seedling establishment has not occurred in three years, additional seeding and/or transplanting will be required. The area will be considered successfully restored when percent cover is 80% that of the reference community, as defined by the BLM though ecological site descriptions and Natural Resources Conservation Service data. If after restoration monitoring, it is determined by the BLM that 80% is not achievable, the percent cover will be lowered based on the BLM resource specialist’s best professional judgment, and adaptive management techniques will be implemented to address restoration needs.

Weed mapping and monitoring will be included as part of the monitoring program. New populations of weeds found within or adjacent to the right-of-way will be treated with the appropriate herbicide for the target species.

4.0 WEED CONTROL

The State of Nevada has identified several plant species as noxious and invasive weeds. BLM noxious weed GIS data indicate that no known noxious weed infestations are located within the project area; however, seven noxious weed species are located within a 3.2-km (2-mile) buffer. Proper identification of noxious and invasive weeds is critical to the success of any weed control program. Distributing weed identification pamphlets or lists to all employees and including a discussion of weed control efforts in the environmental awareness training will aid in the identification of new infestations. All personnel will be encouraged to report weed species observed within the project area. Early identification can reduce costs associated with eradicating established stands of noxious weeds. A staging area outside the project location will be provided to clean (using water, compressed air, shaker diamond grid, or similar) all vehicles and equipment, concentrating on the undercarriage and wheels to remove seed and plants parts. Similarly, all vehicles and equipment will be cleaned after traveling through weed infested areas. Compressed air may be used in place of water. For this project, the risk rating is high. This indicates that the project must be modified to reduce the risk level through preventive management measures. These preventive management measures include the following:

1. Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing

populations of weeds will be explained. It is also recommended that an annual refresher of this training be provided to affiliated personnel.

2. Prior to construction a site-specific weed survey will occur. Monitoring will be conducted during and five years after reclamation reports will be provided to the BLM Ely District Office. If the presence and/or spread of noxious weeds is noted, appropriate weed control procedures will be determined in consultation with Ely District Office personnel and will be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbooks H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Submission of pesticide use proposals and pesticide application records will be required.
3. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground-disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high-pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet, and tires and on the undercarriage. Special emphasis will be applied to axles, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using GPS units or other mutually acceptable equipment and provided to the District Weed Coordinator or designated contact person.
4. To eliminate the introduction of noxious weed seeds, roots, or rhizomes, all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for reclamation or stabilization activities, feed, and bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.
5. Removal and disturbance of vegetation will be kept to a minimum through construction site management (e.g., using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.).
6. Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to outcompete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approved by the BLM Authorized Officer prior to planting.
7. At the end of the project, annual monitoring will be required, with no establishment or spread of noxious weeds allowed on the site at the time of reclamation release. Any noxious weeds that become established or spread will be controlled by the proponent.

4.1 Weed Management Strategies

As stated in the Monitoring and Contingency Measures section above, weed monitoring will be included in the overall site monitoring program. Weeds found within or adjacent to the right-of-way will be treated with a BLM-approved herbicide appropriate for the target species. In the event that this treatment does not prove adequate, additional measures such as adaptive management, mowing, weed removal, plant pathogens, and insect and chemical control can be introduced.

4.1.1 Adaptive Management

Adaptive management is an effective way of addressing the complex and numerous problems that noxious weeds pose to landowners and land managers. In an adaptive management strategy, the outcome of control efforts may vary and necessitate changes in methods for prevention and suppression and are incorporated into an integrated weed management plan (Colorado State University 2000). No single management technique is perfect for all weed control situations, and multiple management actions may be required for effective control. Ecologically Based Integrated Weed Management (EBIWM) is the process by which one selects and applies a combination of management techniques (biological, chemical, mechanical, and cultural) that, together, will control a particular weed species or infestation efficiently and effectively, with minimal adverse impacts to non-target organisms. Ideally, these management techniques should be selected and applied within the context of a complete natural resource management plan.

Most traditional weed management concentrates only on suppression, which treats the symptoms of weed infestation, typically by using herbicides to kill weeds. EBIWM differs from ordinary weed management in attempting to address the ultimate causes of weed infestation, rather than simply focusing on controlling weeds. EBIWM seeks to combine two or more control actions that will interact to provide better control than any one of the actions might provide. However, even if multiple control actions do not interact, their additive effects can mean the difference between success and failure. In addition, employing multiple control actions should increase the likelihood that at least one of them will control the target weed species. EBIWM is species specific, tailored to exploit the weaknesses of a particular weed species, site specific, and designed to be practical with minimal risk to the organisms and their habitats (Colorado State University 2000).

4.1.2 Mowing

The ecological basis for mowing weeds is directed at the efficiency of invasive plants to take up and assimilate carbon dioxide and then alter that physiological function. Properly timed mowing can suppress invasive weeds and favor native and desirable plant species. The most effective time to mow is when the invasive weed is actively growing and the desirable species is dormant. This can prevent weed seed production, as well as stress the plant after they have invested large amounts of energy into flowering and photosynthetic tissue, and repeated mowing can deplete root reserves. Effective mowing is a long-term commitment; some weeds are stimulated by mowing thereby increasing stand densities. However, over several years, the root reserves will become depleted and stand densities will decrease. Species that respond well to mowing include Canada thistle, Dalmatian toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*), Russian knapweed, and hoary cress (Sheley 2002).

Mowing frequency is dependent on several factors. A spring mowing may be sufficient to reduce annual or biennial species, unless summer rains or soil moisture allows the weed species to regenerate, requiring a second or even third mowing. Rhizomatous weeds often require several mowings over a growing season to successfully control growth. Mowing is not likely to be effective alone, but can increase effectiveness of other control efforts, such as herbicide application (Sheley 2002). Other limitations to mowing include spreading weed seeds and high cost of equipment and labor. Mowing may be an effective form of ongoing weed control in recently disturbed roadsides resulting from access road expansion.

4.1.3 Removal

Removing plants by hand pulling them to uproot the plant works well for small infestations of annual and biennial plants. The contractor should ensure the plant species do not resprout from residual roots.

Pulling does not generally remove the entire root system and is ineffective for killing rhizomatous weed species. Species that are good candidates for hand pulling include Dalmatian toadflax, jointed goatgrass (*Aegilops cylindrica*), musk thistle, puncturevine (*Tribulus terrestris*), Scotch thistle, bull thistle, Dyer's woad (*Isatis tinctoria*), and myrtle spurge (*Euphorbia myrsinites*).

Some plants produce chemicals that cause allergic reaction or dermatitis in some people. Individuals should always wear personal protection equipment (long sleeves, gloves) and avoid areas where chemical treatments or other safety restrictions apply.

4.1.4 Plant Pathogens and Insects

The use of herbivores and pathogens found in a given weed's native range can be an effective way to control that noxious weed. Pathogens that cause disease in specific plants have been identified in every category, including bacteria, fungi, nematodes, protozoa, and viruses. Some organisms are host specific, while others are capable of infecting several species (Coombs et al. 2004).

Insects have been successfully used as biological control agent throughout the United States. They can attack the plant in both the larval and adult stages, causing damage to leaves, stems, flowers, and root systems. Releasing new insects involves the use of either a field insectary or field nursery site. Many factors influence the survival and success of released agents on noxious weeds, and one of the most important factors is how many agents are released and how often they are released. Larger releases are more successful, as they reduce the risks of genetic effects and accommodate population shifts in highly variable environments. Some effective biological controls are available for Dalmatian toadflax and leafy spurge.

4.1.5 Chemical Controls

Numerous herbicides may prove useful to the reduction and eradication of noxious weeds. Chemicals may reside in upland and drier areas because of the lack of water and subsequent hydrolysis (breakdown) of the herbicide; therefore, consideration of these side effects must be taken into account. Herbicides can be categorized according to how they move through a plant: downwardly mobile, upwardly mobile, and contact. Choosing the correct herbicide for the target species is important to avoid damaging desirable species, ensuring effective control of the weed species, and avoiding impacts to wildlife and the environment. Table 6 summarizes current commonly used herbicides and their effectiveness on target species. Additional herbicides not listed may also be appropriate as determined by the BLM. Ratings for listed herbicides were presented when available and were obtained largely from Dewey et al. (2006), Colorado State University (2000), U.S. Environmental Protection Agency (2006) Fact Sheets, and specific herbicide labels. *Prior to any herbicide application, the BLM Weed Coordinator must be contacted to obtain approval*.

Table 6. Herbicide Controls for Noxious and Invasive Weed Species

Common Name (Scientific Name)	Aminopyralid	Glyphosate	Imazapic	Imazapyr	Chlorsulfuron
Russian knapweed (*Acroptilon repens*)	E	G, P	G		F
Jointed goatgrass (*Aegilops cylindrica*)	P	E, G			
Cheatgrass (*Bromus tectorum*)	P	E, G	E		
Hoary cress (*Cardaria draba*)	F	G, F	G		E
Musk thistle (*Carduus nutans*)	E	E	G		G
Yellow starthistle (*Centaurea solstitialis*)	E				
Diffuse knapweed (*Centaurea diffusa*)	E	X			
Spotted knapweed (*Centaurea stoebe* spp. *micranthos*)	E	E			

Table 6. Herbicide Controls for Noxious and Invasive Weed Species (Continued)

Common Name (Scientific Name)	Aminopyralid	Glyphosate	Imazapic	Imazapyr	Chlorsulfuron
Squarrose knapweed (*Centaurea virgata*)	E	X			
Canada thistle (*Cirsium arvense*)	E	G			G
Bull thistle (*Cirsium vulgare*)	E	E, G			G
Poison hemlock (*Conium maculatum*)	F	E, G		G	
Field bindweed (*Convolvulus arvensis*)	F	G, F			
Houndstongue (*Cynoglossum officinale*)	F	X	X		
Bermudagrass (*Cynodon dactylon*)	P	G			
Common teasel (*Dipsacus fullonum*)	F	G			
Russian olive (*Elaeagnus angustifolia*)	F	G		G	
Quackgrass (*Elymus repens*)	P	G			
Leafy spurge (*Euphorbia esula*)	F,P	G, F	G		
Myrtle spurge (*Euphorbia myrsinites*)	F	G			
Dyers woad (*Isatis tinctoria*)	F	G	G		G
Perennial pepperweed (*Lepidium latifolium*)	F	G	G		G
Dalmatian toadflax (*Linaria dalmatica*)	F,P	G	G		G
Purple loosestrife (*Lythrum salicaria*)	G	G			
Scotch thistle (*Onopordum acanthium*)	E		G		G
Phragmites (*Phragmites australis*)		G		G	
Buffalobur (*Solanum rostratum*)	P				
Johnsongrass (*Sorghum halepense*)	P	E, G			
Medusahead (*Taeniatherum caput-medusae*)	P	G			
Puncturevine (*Tribulus terrestris*)	F	E	G		G

Note: E = Excellent, G = Good, F = Fair, P = Poor, X = Unrated.

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APPENDIX A. TREATMENT MATRIX

Action	Permanent Disturbance	Temporary Disturbance (D1)	Temporary Disturbance (D2)	Temporary Disturbance (D3)
Pre-construction				
Weed survey and control	×	×	×	×
Windrow surface vegetation to the side of disturbance	×		×	×
Windrow and segregate vegetation, topsoil, and subsoil; two or three passes may be required	×			×
Post-Construction				
Earthworks: decompact terrain, 3-4 inches		×	×	×
Decompact terrain, recontour, and replace surface soils and vegetation			×	×
Backfill subsurface soil, then surface soil and vertical mulch		×	×	×
Stabilize soil surface		×	×	×
Reseed				×
Apply Permeon				×
Install signage		×	×	×
Conduct monitoring		×	×	×

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APPENDIX B

Traffic Management Plan

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TRAFFIC MANAGEMENT PLAN FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

U.S. Bureau of Land Management
Schell Field Office
702 North Industrial Way
Ely, Nevada 89301

and

Spring Valley Wind, LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
2820 West Charleston Boulevard, Suite 15
Las Vegas, Nevada 89102

SWCA Project No. 14417

October 2010

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INTRODUCTION

This Traffic Management Plan has been developed on behalf of Spring Valley Wind LLC (SVW) and the Bureau of Land Management (BLM) Schell Field Office for the proposed Spring Valley Wind Energy Facility (SVWEF). Typical wind power projects are constructed in remote areas over large physical distances and thus incorporate many miles of roads. These roads will include both existing county, state and federal motorways, as well as newly constructed roads built for the purpose of building and maintaining the wind power equipment. This plan provides for methods to address traffic control issues caused by construction activities, minimum road design standards, and other stipulations required by the BLM or any other associated land management/jurisdictional agencies.

TRAFFIC SAFETY

Public access to the SVWEF will be restricted for public safety during the construction phase of the project. Access will be restricted in areas where active construction is taking place. Numerous hazards exist, both to the workers and those traveling through or near the site on public access roads. Therefore, warning signs will be posted along the access roads indicating the dates of construction activities and recommending that the public take alternate routes during that time period. In addition, within the laydown area where supplies, including those deemed hazardous, and equipment will be properly secured (e.g., fenced) to prevent theft, tampering, or injury. Areas with construction in progress will be secured so that no one without proper safety training will be able to access them. Wind turbine generator access doors will remain locked at all times. Public access through the project area will be restored during operations.

During the construction of the project, deliveries will be directed to a single, controlled point of entry at the project main gate located at the project entrance off State Route (SR) 893, in the same location as the job trailer and site laydown yard. Guidance to the main gate will be provided by strategically located signs that provide verbal and visual direction from the position of the sign to the main gate. Security will be provided at the main gate, and all vehicles will be required to stop and check in. Each on-site contractor, subcontractor, and supplier must prepare a listing of the expected deliveries for the day and provide this list to security personnel at the beginning of the day. Any unannounced or unplanned delivery will be held at the main gate until an authorized representative of the party ordering the delivery can appear at security and vouch for the delivery. All deliveries will be escorted by an authorized representative of the ordering party from the main gate to the point of delivery.

All on-site personnel will receive an orientation detailing the on-site traffic rules with exception to delivery truck drivers that do not leave the cab of their vehicle and do not leave the laydown yard. Orientation will include:

- Detailed emergency procedures
- Off-road travel restrictions and the penalties for doing such
- Review of a detailed site map (provided to all personnel) that includes:
    - Traffic flow and direction requirements to access the various parts of the project site
    - Routes for emergency procedures
    - Emergency notification contact information
- Review of specific project area traffic rules, including:
    - For vehicles traveling in the same direction, the rear vehicle may not pass the front vehicle until the front vehicle has stopped.

- During periods of high traffic volume on the project roads, the site safety manager will coordinate the traffic flow.
- Smaller, more maneuverable vehicles must yield to larger, less maneuverable vehicles.
- Driving under a load is prohibited.
- Seat belts are required any time a vehicle is in motion.
- Signage for an on-site speed limit of 24 km per hour (15 miles per hour [mph]) and other traffic direction will be posted as necessary throughout the site. Violation of the speed limit will result in warnings and possibly termination of site access privileges.

Upon completion of the orientation, all personnel will be given a sign with unique identification, which must be displayed in full view on the dash of the vehicle. This unique identification number will be recorded by security as vehicles pass through the main gate. All vehicles must be checked out by security at the end of the workday. This inventory will be checked against the list created at the beginning of the day. In the event there is a vehicle that did not check out with security at the end of the day, the supervision of the responsible contractor will not be allowed to leave the site until the missing vehicle is accounted for.

Daily meetings will be held to discuss road use requirements and projected deliveries of each meeting participant in order to identify potential time and location conflicts. Working cooperatively, all parties will determine the appropriate schedule for activities in order to minimize delays and road use conflicts. Delivery information will also be provided to security. Proper coordination will:

- Normalize traffic flows
- Improve management of high use points to promote the overall project schedule
- Enhance inventory control
- Minimize the impact on public traffic
- Reduce potential for accidents involving the public
- Minimize the impact of traffic-related activities on site neighbors
- Minimize the deterioration of public motorways

Additionally, during construction, SVW will implement the following specific actions for roads within the project area as part of the Traffic Management Plan in order to provide for the safety of the general public, SVW employees, contractors, and visitors, such as federal agency employees.

- During construction, traffic safety on the project roads will be managed by the primary contractor (Balance of Plan).
- The site safety manager will regularly check the project roads for any safety hazards or obstructions and take action to remove or apply warning information accordingly.
- SVW will establish formal protocols to enhance personal and vehicle safety.
- Speed limits will be posted (e.g., 40 km per hour, or 25 mph) and enforced to reduce airborne fugitive dust. Project personnel and contractors will adhere to speed limits commensurate with road types, traffic volumes, vehicle types, and site-specific conditions, to ensure safe and efficient traffic flow (BLM 2005).
- During construction, traffic will stay within designated construction areas. During operation, traffic will exclusively use the roads developed for the project as disclosed in the Plan of Development and Environmental Assessment. Designated project roads will be clearly marked

and compliance to this requirement will be strictly enforced. Use of other unimproved roads will be restricted to emergency situations (BLM 2005).

- The following measures will be implemented for the use of SR 893 and U.S. Route 6/50. All activities will be monitored for compliance by the BLM and/or a designated inspector.
- Signs will be posted at key intersections (SR 893 and U.S. Route 6/50) two weeks prior to the commencement of construction activities that indicate the expected dates and locations of motorized traffic restrictions.
- As practicable, construction vehicle travel will be limited on SR 893 and U.S. Route 6/50 during the morning and late afternoon commute times (approximately 7 am to 9 am and 4 pm to 6 pm).
- All construction traffic will exercise due caution and care to prevent undue conflict with public use of the roads.
- Flagmen on public motorways will be stationed during the delivery of oversized machinery, equipment, and materials, and during the movement of heavy equipment.
- Temporary signage will be stationed at each point on a public road where the project site boundary crosses that road.
- Construction traffic control will be provided as needed in congested areas, such as the intersection of SR 893 and U.S. Route 6/50.
- Signs will be sized, numbered, and colored as stipulated in the current edition of the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* (U.S. Department of Transportation 2009).
- Warning signs will be posted with flags on either end of the section being worked alongside public roads to warn drivers of work in progress.
- Appropriate temporary guards, signs, bridges, lights, and other signals will be provided and placed as necessary for public safety.
- Signs will be moved, as needed, so that they do not precede machinery by more than 0.5 mile.
- Signs will only be posted when machinery is actually working.
- A reflectorized "Slow Moving" vehicle emblem will be attached to all slow-moving equipment when outside the project area.

ROAD STANDARDS

This section provides standards for all roads on the project site. Roads on-site are on BLM land and would be managed by the right-of-way grantee. This section also provides standards for Nevada Department of Transportation (NDOT) roads (NDOT 2001).

General Project Roads

General standards for all roads on the site will comply with applicable road design criteria that are in effect at the time improvements are made.

Procedures

- Obtain approval for all plans from a Nevada Registered Professional Engineer.

- Obtain all applicable permits and approvals from the BLM prior to commencement of construction.
- Prepare all required plans and schedules for approval and/or review by the BLM prior to improvements being made.
- Comply with the project Stormwater Prevention Pollution Plan (SWPPP) and other applicable construction plans to prevent air and water pollution and erosion of existing waterways.

Requirements

- Vehicles will remain on the designated project construction footprint. Drive and crush activities are allowed for sensitive resource avoidance, geotechnical investigations/testing, meteorological tower placement, and temporary laydown.
- All temporary road widths must be restored in accordance with the project restoration plan (SWCA Environmental Consultants 2010).
- A vehicle wash station (water, compressed air, or similar) and tracking pad will be installed at each entrance to the project used by construction vehicles as a means to control mud, soil, or other vehicle track out and to control the spread of noxious weeds by construction vehicles exiting the project area.
- Existing BLM standards regarding road design, construction, and maintenance are described in the BLM Manual 9113 and the Gold Book (Rocky Mountain Regional Coordinating Committee 1989) and have been used in the road design and layout. Generally, roads will follow natural contours, be constructed in accordance with standards as described in BLM Manual 9113, and be reclaimed to BLM standards. As described in BLM Manual 9113, BLM roads should be designed to an appropriate standard no higher than necessary to accommodate their intended functions (BLM 2005).

Nevada Department of Transportation Roads

NDOT standards in this document are based on the *Standard Specifications for Road and Bridge Construction* (NDOT 2001). The standards pertain to roadways included in the state's system of maintained public rights-of-way. All road improvement construction will comply with applicable road design criteria that are in effect at the time improvements are made. SR 893 is the only state-maintained public right-of-way road adjacent to the project area that may be impacted by the project. No improvements to that right-of-way are considered necessary for access to the site as of preparation of this document. If a state right-of-way requires improvements, the following should be followed:

Procedures

- All plans will be prepared by a Nevada Registered Professional Engineer.
- For improvements to state roads, approval from NDOT and all permits will be obtained prior to the commencement of the improvements or encroachment onto a public right-of-way.
- Improvements of existing substandard roadways will conform to current state standards.
- The SWPPP and Traffic Management Plan are to be submitted to the Director of NDOT (Engineer) at least seven days prior to the preconstruction conference for approval and/or review prior to any improvements. Drainage impact analysis, traffic impact analysis, and mitigation plans may also be required prior to construction. Construction may not begin without prior approval from the Engineer.

- Written notification will be provided to emergency services (fire, police, ambulance, etc.) at least 24 hours in advance of traffic detours and at least 48 hours prior to the commencement of construction activities.

Pollution Prevention

- Comply with the project SWPPP and other applicable construction plans to prevent pollution to air and waters of the U.S. and to minimize damage.
- Apply water in amounts provided by and on areas designated by the Engineer.
- When applying water directly to the roadbed, process the material until the layer is uniformly wet. Do not disturb previously placed and compacted layers.
- Cultivate excavation slopes to depths specified by the Engineer and spread topsoil to a minimum depth of 75 mm (3 inches).
- Repair any damage to roadbeds, shoulders, etc., resulting from hauling and placing topsoil.
- Compact topsoil from construction of Nevada state roads under the jurisdiction of NDOT unless otherwise specified by the engineer.
- Give the Engineer a minimum of 24 hours' notice of any seeding operations.
- Unroll and place erosion control fabric parallel to water flow immediately after final grading. Overlap strips a minimum of 150 mm (6 inches).

Modification and/or Construction of Roadways and/or Shoulders

- If an existing roadway is to be modified, pulverize the existing roadways to the required depth as indicated in the plans.
- Maintain the surface in an acceptable condition.
- Do not process roadbed materials if the temperature is below 2°C (35°F) or if conditions indicated that the temperature will fall below 2°C (35°F) for four hours or more within a 24-hour period after final compaction.
- Clean up and remove all debris from roadways at frequent intervals.
- Limit grading to mainly motor grader work.
- Eradicate so that the ground is restored to its original state or better condition.
- Dispose of materials as directed.
- Maintain public traffic. Allow emergency vehicles immediate passage through the construction area.
- If a shoulder is to be constructed, clear and grub for a minimum width of 3 m (10 feet).
- Do not allow windrows exceeding 100 mm (4 inches) in height if the adjacent lane is open to traffic. Do not place materials into ditches or back slopes.
- Grade and compact the shoulder after the paving is complete.

Detours

- Stake the exact location of the detour.

- Use barricades, portable sign supports, and cones or drums with attachments that meet the National Cooperative Highway Research Program Report 350 testing criteria for Category 2 devices. Usually, these are Type I, II, and IIIB devices.
- Use Type III, IV, V, VI, or X reflective sheeting to reflectorize construction signs, barricades, and other devices.
- Place all traffic control devices along the detour prior to opening the detour up to traffic.
- Place signs so that they are visible and do not restrict lateral clearance of sight distance.
- Protect highway closures with barricades and warning and detour signs. Direct traffic around the entire closed portions of roadway.

TRANSPORTATION PLANNING

Turbine equipment will eventually be delivered, which will warrant a separate and more detailed transportation plan, the dates and schedule of which are yet to be determined. A detailed route transportation study for the project will be provided by the turbine manufacturer once wind turbines are purchased. This study will include the following information:

- Project Description – This section includes the site location, number of turbines, general terrain, and other conditions.
- Purpose of Report – The turbine transport company (as contracted by turbine manufacturer) will identify all relevant permit requirements and any readily observable structural modifications, upgrades, and/or repairs to public roads and other transportation infrastructure that may be required to permit the transport of the units to the project site. The project construction contractor may conduct a similar transportation study for any large equipment deliveries to the project site.
- Equipment – This section provides a detailed description of the transportation equipment planned for use in delivering the turbine components to the project site. Typically the section includes a figure with overall dimensions for the nacelle transport, tower top transport, tower base transport, tower mid-transport, and tower blade transport. It also includes information on turning radius requirements and axle loading of each oversized transport vehicle.
- Route Study – This section provides a detailed description of each route proposed for the various components, including the starting location and list of roads/highways/etc. that is considered the best route option. This study will include a check on clearance of bridges and power lines. Note that each type of component is likely to have a different starting location (i.e., a factory, port, or rail location).
- Points of Note – This section will summarize any areas of general concern for each of the transports. These concerns can range from road radius or structural limitations to overhead wire clearance to traffic curfews. Any restrictions would also be detailed in this section with proposed work around plans.
- Required Improvements and Actions – This section summarizes those areas that need to be addressed prior to delivery.
- Photographs – The study will provide photographs showing the various roads, with emphasis on areas needing improvement or areas of concern.

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APPENDIX C

Lighting Plan

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LIGHTING PLAN FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

U.S. Bureau of Land Management
Schell Field Office
702 North Industrial Way
Ely, Nevada 89301

and

Spring Valley Wind, LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
7373 Peak Drive, Suite 170
Las Vegas, Nevada 89128

SWCA Project No. 14417

October 2010

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1.0 INTRODUCTION

This Lighting Plan has been developed on behalf of Spring Valley Wind, LLC (SVW), and the Bureau of Land Management (BLM) Schell Field Office for the proposed Spring Valley Wind Energy Facility (SVWEF). The project area is located approximately 32 km (20 miles) east of the existing Ely Airport (Yelland Field). This plan addresses lighting for wind turbine generators (WTGs), meteorological and microwave towers, maintenance facilities, and substations related to the SVWEF.

2.0 LIGHTING PLAN

The guidelines for lighting WTGs and other structures over 61 m (200 feet) high are set by the Federal Aviation Administration (FAA)—as documented in FAA Advisory Circular (AC) 70/7460-1K "Obstruction Marking and Lighting" (FAA 2007). Additional measures are provided in previous FAA AC reports (FAA 2000, 2006), the FAA's *Development of Obstruction Lighting Standards for Wind Turbine Farms* (FAA 2005), and the BLM *Programmatic Environmental Impact Statement for Wind Development on BLM-Administered Lands in the Western United States* (BLM 2005). An initial lighting design based on those guidelines has been completed for the Proposed Action and Resource Avoidance Alternative (Figures 1 and 2, respectively) and will be submitted to the FAA for approval following a decision record for the project. Lighting for the SVWEF will include the following measures:

- Consultations with the FAA, state, and other federal regulatory agencies will be conducted as necessary.
- The project will comply with FAA regulations, including lighting requirements, and avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips (BLM 2005).
- All activities will be monitored for compliance by the BLM and/or authorized inspector. Notices of Proposed Construction or Alteration will be submitted to the FAA for review.
- Red obstruction lighting will be installed as documented in the FAA notice of "Determination of No Hazard to Air Navigation" for each WTG.
- Light fixtures will be placed as high as possible in order to be visible from 360 degrees (FAA 2007).
- Not all turbines need to be lit. The periphery of the area needs to be clearly defined and lit. Internal lighting is not as important unless there are higher plateaus or ridges within the area (FAA 2007).
- A light will be placed at the end of every string of turbines and spaced evenly along that string, spaced no more than 805 m (2,640 feet) apart (FAA 2007).
- If the turbines are painted white, daytime illumination is not required. If daytime lighting is required, use flashing white (L865) lights for tall tower lighting with a minimum intensity of 20,000 candelas (FAA 2005).
- All lights must be synchronized to flash simultaneously. Synchronization of the lights can be accomplished through radio frequency devices, hard-wired control cables, or independently mounted global positioning system (GPS) synchronizer units (FAA 2005).
- The light fixtures should flash at the rates and for the durations specified in AC 150/5345-43F (FAA 2006).

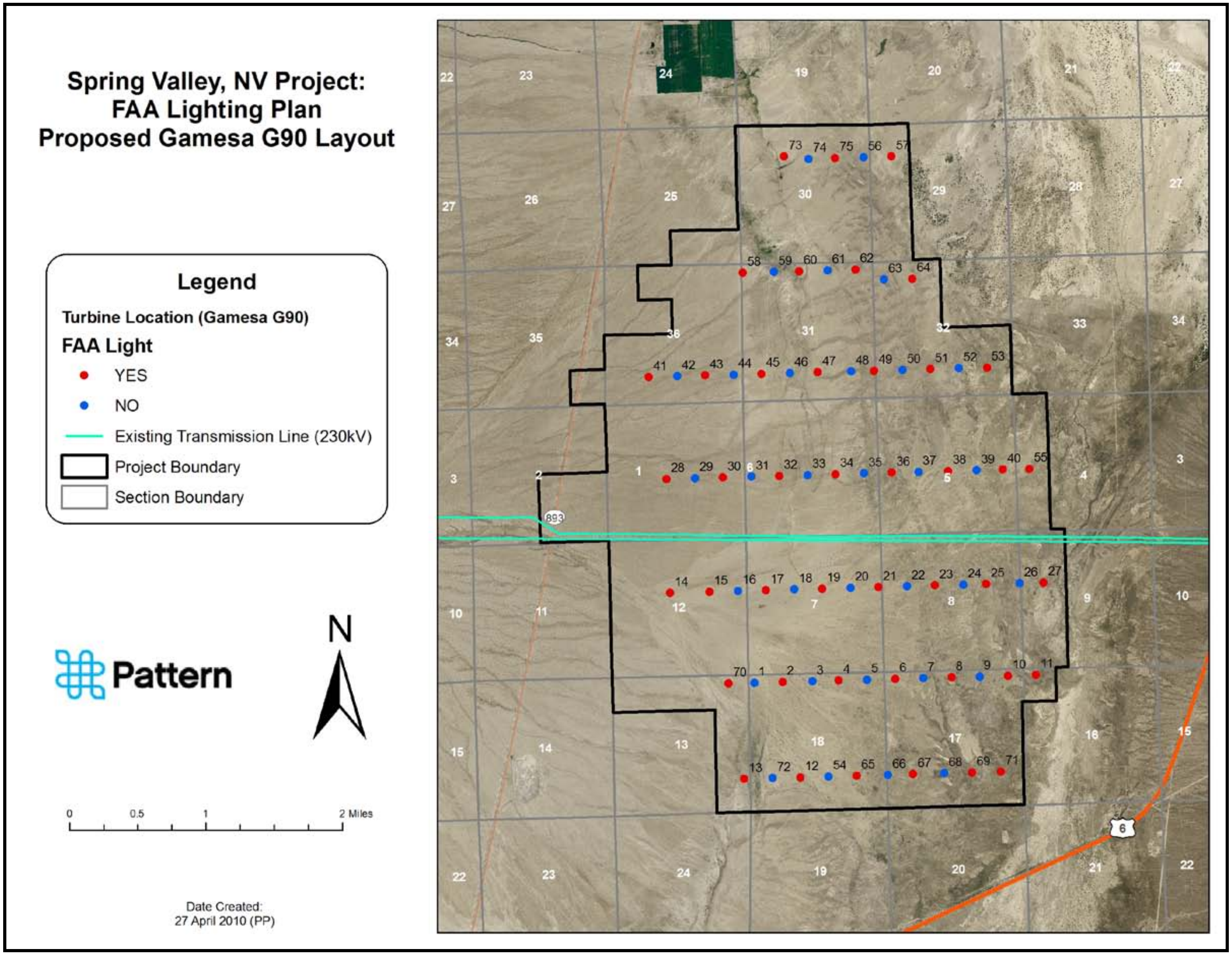

Figure 1. Proposed layout.

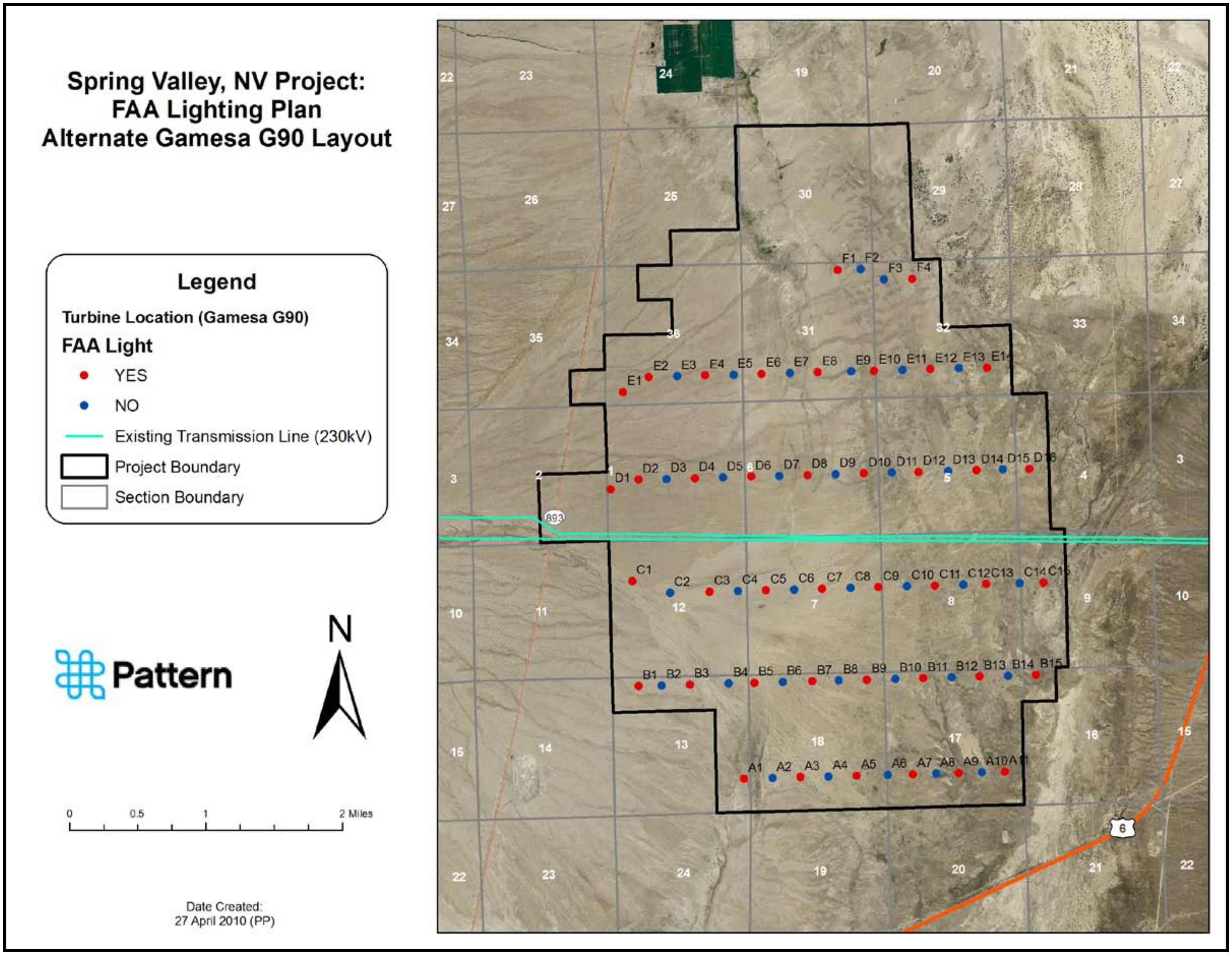

Figure 2. Alternate layout.

- The proper authorities will be notified if the synchronizer unit fails and the turbine farm is no longer in a synchronized state. The notification process will occur if the unit is out of service for more than 36 hours (FAA 2005).
- During construction activities, cranes and other construction equipment that exceed 61 m (200 feet) high will comply with FAA regulations for lighting, including operation of lighting 24 hours per day until construction is complete, but may be temporarily shut off if interfering with construction personnel (FAA 2000).
- Site design should be accomplished to make security lights nonessential. Such lights increase the contrast between a wind energy project and the night sky, especially in rural/remote environments, where turbines would typically be installed. Where they are necessary, security lights will be extinguished except when activated by motion detectors (e.g., only around the substation) (BLM 2005).
- Substation and maintenance building lighting will be down-shielded in order to keep the light within the site boundary.
- In order to reduce attraction of migratory birds, the use of sodium vapor lights at site facilities will be minimized or avoided. All unnecessary lighting will be turned off at night to limit attracting migratory birds (BLM 2005).
- Any modifications to the FAA (2007) guidelines will be reviewed and approved by the FAA prior to implementation.

3.0 LITERATURE CITED

Bureau of Land Management (BLM). 2005. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. U.S. Department of the Interior, Bureau of Land Management. June.

Federal Aviation Administration (FAA). 2000. Obstruction Marking and Lighting. Advisory Circular Report. Prepared for the Air Traffic Airspace Management. U.S. Department of Transportation. Report Number AC 70/7460-1K. August 1, 2000.

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APPENDIX D

Stormwater Pollution Prevention and Spill Prevention Requirements Plan

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STORMWATER POLLUTION PREVENTION AND SPILL PREVENTION PLAN REQUIREMENTS FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

U.S. Bureau of Land Management
Schell Field Office
702 North Industrial Way
Ely, Nevada 89301

and

Spring Valley Wind, LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
2820 West Charleston Boulevard, Suite 15
Las Vegas, Nevada 89102

SWCA Project No. 14417

October 2010

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1.0 STORMWATER POLLUTION PREVENTION PLAN REQUIREMENTS

1.1 Introduction

The Nevada Division of Environmental Protection (NDEP) Bureau of Water Pollution Control[1] has been delegated the authority to administer the federal regulations and has adopted state regulations to administer the National Pollutant Discharge Elimination System stormwater program. The Nevada General Permit includes provisions for development, implementation, and maintenance of the Stormwater Pollution Prevention Plan (SWPPP) to provide Spring Valley Wind, LLC (SVW), with the framework for reducing soil erosion and minimizing pollutants in stormwater during construction of the Spring Valley Wind Energy Facility (SVWEF), as well as stormwater protection and erosion control during the continued operation of the facility. Construction sites that result in soil disturbance of 1 acre or greater require the preparation and implementation of a SWPPP meeting the requirements of the General Permit for the State of Nevada (Permit No. NVR100000). For general inclusion within the Nevada stormwater General Permit a Notice of Intent must be filed with the State of Nevada at least two days prior to the start of construction. Upon completion of the construction phase of the project (inclusive of final stabilization of the construction site), a Notice of Termination must be submitted to the State of Nevada. Information, forms, and manuals are available from the NDEP website.

The SWPPP will also provide the tools required to reduce pollutants contained in stormwater discharges and comply with the requirements of the General Stormwater Permit (State of Nevada 2007). Specifically, the SWPPP will:

- Define the characteristics of the site and the type of construction that will be occurring;
- Describe the site plan for the facility to be constructed;
- Describe the practices that will be implemented to control erosion and the release of pollutants in stormwater;
- Create an implementation schedule to ensure that the practices described in the SWPPP are implemented in conjunction with the planned construction sequencing;
- Evaluate the plan’s effectiveness in reducing erosion, sediment, and pollutant levels in stormwater discharged from the site; and
- Describe the final stabilization/termination design to minimize erosion and prevent stormwater impacts after construction is complete.

Runoff and erosion can be minimized at the project site by implementing best management practices (BMPs) that will:

- Divert upslope runoff away from disturbed surfaces until they are stabilized;
- Collect, retain, and/or treat any water that contacts disturbed surfaces before leaving the right-of-way;
- Permanently stabilize exposed surfaces once construction is complete;
- Locate roads and access where impacts to water quality will be minimized; and
- Implement good housekeeping practices to prevent runoff of chemicals and fuels potentially stored on-site.

[1] http://ndep.nv.gov/bwpc/storm_cont03.htm.

1.2 Required Information in the SWPPP

At a minimum, the following specific items of information will be included in the SVWEF SWPPP.

Project and Permittee Information:

- Permittee Name (Proponent or General Contractor, as appropriate)
- Contact Name
- Mailing Address
- City, State Zip
- Phone
- Fax
- Cell
- Email

Notice of Intent

Project Description, including:

- Description of the proposed construction activity
- Intended sequence of major soil-disturbing activities
- Existing soil and water quality data, as needed
- Runoff coefficients

Site Layout Maps, including:

- General location map showing roads and highways
- Detailed site map
- Industrial discharges, if applicable

Receiving Waters, including:

- Receiving water(s) identification
- 303(d) Impaired Water Body Listing, if applicable
- Total maximum daily load

BMP Implementation, including:

- Stormwater BMPs
- Temporary soil stabilization practices
- Permanent soil stabilization practices
- Structural practices
- Post-construction stormwater management controls
- Non-stormwater discharge management

Other Controls, including:

- Material storage, spill prevention and response (see Section 2.0)
- Off-site vehicle tracking controls
- Dust control

- Construction waste storage and disposal
- Hazardous and sanitary waste storage and disposal
- Off-site discharges
- Soil stabilization at culverts

Inspection/Maintenance Procedures:

- Inspection and maintenance of BMPs
- Inspection and maintenance of other controls
- Inspector qualifications

Certifications of Compliance

- Owner/operator certification statement
- Contractor's certification statement

Records of Inspection and Construction Activities

- Record of major construction activities and BMP implementation
- Record of construction site inspections
- Record of follow-up actions

1.3 Other SWPPP Information: Mitigation and Prevention Measures

The following mitigation measures are outlined in the *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States* (Bureau of Land Management [BLM] 2005) and will be incorporated into the SWPPP that is prepared for the SVWEF:

- Erosion controls that comply with county, state, and federal standards should be applied. Practices such as jute netting, silt fences, and check dams should be applied near disturbed areas.
- On-site surface runoff control features should be designed to minimize the potential for increased localized soil erosion. Drainage ditches should be constructed where necessary but held to a minimum.
- Operators should identify unstable slopes and local factors that can induce slope instability (such as groundwater conditions, precipitation, earthquake activities, slope angles, and dip angles of geologic strata). Operators also should avoid creating excessive slopes during excavation and blasting operations. Special construction techniques should be used where applicable in areas of steep slopes, erodible soil, and stream channel/wash crossings.
- Existing drainage systems should not be altered, especially in sensitive areas such as erodible soils or steep slopes. When constructing stream or wash crossings, culverts or water conveyances for temporary and permanent roads should be designed to comply with county standards, or if there are no county standards, to accommodate the runoff of a 10-year storm. Potential soil erosion should be controlled at culvert outlets with appropriate structures. Catch basins, roadway ditches, and culverts should be cleaned and maintained regularly.

2.0 SPILL PROTECTION

There is potential for on-site spills or leaks and therefore a Spill Protection Plan (SPP) will be prepared as a safety precaution. If at any time the project area has fuels and hazardous fluids in quantities greater than those stated in 40 Code of Federal Regulations (CFR), SVW or its contractor will submit a Spill Prevention Control and Countermeasure Plan to meet federal and state requirements.

Potential hazards include fuel and oil spills or leakage from equipment at the project site. Hazardous materials and fluids that may be kept at the site include:

- Fuel (diesel and unleaded) for construction equipment and vehicles
- Lubricants and mineral oils
- Cleaners
- Industrial material

2.1 Spill Protection Guidelines

The guidelines and procedures discussed in this document will cover the construction period as well as operations and maintenance (O&M) activities once construction is complete. The SPP will be adapted to the activities occurring within the project area and will be modified to new or changing activities. Spill prevention for the project will include but not be limited to the following guidelines as a means to minimize the risks of spills during construction and operation:

- Personnel should follow manufacturer's instructions for setup, operation, and maintenance procedures on all equipment to eliminate possible spills. Maintenance schedules will include leak checks; any leaks detected will be noted and fixed, and any release of hazardous waste should be cleaned up and mitigated immediately upon discovery in accordance with the plan.
- The construction and operational activities will include fuel staging areas with containment structures that will not be located in an area that may be subject to periodic flooding.
- All tanks, valves, fittings, equipment, and vehicles will be inspected regularly by company inspectors to determine present condition and perform required maintenance. SVW, or its contractor, will implement oil spill provisions accordance with 40 CFR 112 and the regulations of the State of Nevada.
- Site personnel who are involved in fuel-powered vehicles, use of fuel or oil, maintenance of the facility, stormwater drainage, and spill cleanup will be made familiar with the plan. A copy of the plan will be posted and readily available to all personnel at the facility. Site personnel whose job duties require them to unload, transfer, disperse, or handle hazardous chemicals must be trained in the proper handling, safety, hazards, and cleanup of such materials. Site personnel will be trained in the proper use of personal protective gear and in reporting and recordkeeping procedures.
- Fuel and oil transfers performed on-site will meet minimum requirements and regulations established by the U.S. Department of Transportation. The tanks will be attended while filling to prevent overflow and to note visible leaks. Site equipment may be refueled by a mobile fuel service.
- Truck drivers should follow correct operating procedures when unloading diesel fuel and stay with the equipment at all times during unloading operations. Key personnel will be present when fuel and/or other chemicals are delivered to ensure that the delivery personnel follow proper procedures. Any spillage will be immediately cleaned up in accordance with the SPP.
- Any fuel storage facility or equipment will be kept gated and locked to prevent vandalism or theft whenever facility personnel are not present. Any other storage facilities that have hazardous chemicals present must be locked and checked on a regular basis for possible accidental releases.

- Used engine oil or fluids will be stored in suitable containers or sheds. Construction contractors are responsible for disposal of the used fluid at an approved disposal site. All used oil or other petroleum products will be hauled away and disposed of an approved waste oil facility. There will be no release of crank-case oil into washes or on the soil. No vehicular maintenance operations, i.e., oil changes, will be released on the site. All oil substances will be drained into containers and disposed of in an approved landfill site. SVW operations personnel will be responsible for used fluid disposal once construction is complete.
- IF AT ALL POSSIBLE, STOP THE SOURCE OF THE SPILL IMMEDIATELY. If it is safe to do so, close the valve(s), shut down pumps, or take whatever actions are possible to stop any release. If conditions are hazardous (for example, fire or potential explosion), do not approach. If the determination is made that the release can be stopped safely, call other nearby employees for assistance in stopping the release.
- The release should be confined to the smallest area possible. Use booms or sandbags, dig small trenches, or place absorbent pads to stop the spread of spilled liquid. Take immediate action to prevent the spill from reaching off-site or surface waters.
    - Place booms or pads, dig a diversion ditch, or use soil to form a berm.
    - If the release reaches water, attempt to place booms to contain the release, or, if necessary, block drainage downstream of spill to prevent further discharge.

2.2 Spill Response Equipment

Table 1 identifies the recommended spill response equipment to be maintained on-site. Spill response will likely include digging up dirt and placing it in berms around the spill and/or digging diversion trenches as well as placing absorbent mats into the spilled oil. Manufacturer information indicates that the oil holding capacity of the listed spill response absorbents is approximately 300 gallons, which should be adequate for initial response to spill incidents.

Table 1. Recommended Spill Response Equipment

Equipment	Quantity	Location
Communications		
Telephone-Cellular	8	Site Vehicle
Two-way Radio	8	Site Vehicle
Personal Protective Equipment		
Protective Coveralls	6	O&M Facility
Impervious Boots and Gloves	6 pair	O&M Facility
Hard Hats	10	O&M Facility
Safety Glasses	10	O&M Facility
Spill Response Equipment		
95-Gallon Oil-Only Overpak Spill Kit	1	O&M Facility
Oil Only Pig Mats	6	O&M Facility
Pig Universal Mat	3	O&M Facility
Shovels	12	Site Vehicle (8); O&M Facility (4)
Empty Drums	5	O&M Facility

Table 1. Recommended Spill Response Equipment (Continued)

Equipment	Quantity	Location
First Aid / Emergency Response		
Fire Extinguisher	10	Site Vehicle (8); O&M Facility (2)
First Aid Kits	9	Site Vehicle (8); O&M Facility (1)
Automatic External Defibrillator	9	Site Vehicle (8); O&M Facility (1)
Eyewash Bottles	10	Site Vehicle (8); O&M Facility (2)
Miscellaneous Spill Response Equipment		
Extended Reach Forklift with Bucket Attachment (for excavating diversion trenches, removal of impacted soil, and construction of spill berms)	1	On-Site during Oil Change-Out Activities

3.0 LITERATURE CITED

Bureau of Land Management (BLM). 2005. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. U.S. Department of the Interior, Bureau of Land Management. June 2005.

State of Nevada. 2007. Stormwater General Permit NVR100000, State Division of Environmental Protection, Carson City, Nevada.

APPENDIX E

Cultural Resources Monitoring and Discovery Plan

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CULTURAL RESOURCES MONITORING AND DISCOVERY PLAN FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

U.S. Bureau of Land Management
Schell Field Office
702 North Industrial Way
Ely, Nevada 89301

and

Spring Valley Wind, LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
2820 West Charleston Boulevard, Suite 15
Las Vegas, Nevada 89102

SWCA Project No. 14417

October 2010

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1.0 INTRODUCTION

Spring Valley Wind, LLC (SVW), plans to construct the Spring Valley Wind Energy Facility (SVWEF). This Cultural Resources Monitoring and Discovery Plan was prepared because of the sensitive nature of cultural resources situated in relative proximity to the project. The plan outlines procedures to follow in accordance with state and federal laws, if archaeological materials or human remains are discovered. Adherence to this plan will protect cultural resources that are discovered, assist construction personnel in complying with applicable laws, and expedite the project in the event of discovery.

2.0 MONITORING REQUIREMENTS

The SVWEF is located in an area known to contain historic and prehistoric resources. The following monitoring requirements will be implemented to ensure protection of significant resources:

- During construction, at least one archaeological monitor will be on-site while all subsurface disturbances are occurring. Following completion of the site, the monitor will conduct a final site check for any uncovered resources. More than one monitor may be required, depending on how much activity is occurring simultaneously.
- Archaeological monitors have the authority to halt construction with the finding of an archaeological discovery, and in some instances as described in the Discovery Plan below, to authorize construction to resume.
- No construction or related activities will occur within the boundaries of sites recommended or determined eligible for listing in the National Register of Historic Places (NRHP). The construction footprint has been evaluated and there currently are no anticipated interferences between construction activities and sites eligible for listing in the NRHP. Nonetheless, a permitted archeologist will have on-site a map and/or global positioning system (GPS) unit loaded with the site boundaries during construction to ensure sites are avoided.
- If at any time human remains or physical remains believed to be human are encountered by the archaeological monitor or construction personnel, the appropriate procedures described below will be implemented.
- All archaeologists monitoring will meet minimum Secretary of the Interior’s Standards for archaeology and will be led in the field by, but not necessarily in the direct presence of, a permitted archaeologist who is qualified based on the standards required under a Bureau of Land Management (BLM) Cultural Resource Use Permit. No additional training will be required.
- All construction personnel will meet with the participating archaeologists for worker education training and orientation prior to the start of any ground- disturbing construction activities. The training will be developed by the participating archaeologists in cooperation with BLM representatives. New construction personnel added after construction begins will be trained before working on-site. A list of trained personnel will be kept by BLM and/or the on-site archaeological monitor (i.e., BLM representative).
- A summary monitoring report will be produced by the archaeological monitor at the completion of monitoring and provided to the BLM archaeologist and SVW.

3.0 DISCOVERY PLAN

Discoveries are divided into two categories. The first includes archaeological materials such as artifacts and features, while the second consists of human remains and associated grave goods.

3.1 Discovery of Archaeological Materials

Archaeological discoveries refer to the material remains of human activities that have the potential to yield data that can increase our understanding of the prehistory and history of the area. Prehistoric discoveries include, but are not limited to, hearth features, pit houses, storage features, artifact concentrations, activity areas, etc. Historical discoveries include, but are not limited to, historic hearths, trash deposits, structures, old canals, roads, artifact concentrations, activity areas, etc. Site and isolated occurrence (IO) definitions provided by BLM guidelines will be applied during monitoring and discovery procedures. In general, a site is defined as a location of purposeful prehistoric or historic human activity. An activity is considered to have been purposeful if it resulted in a deposit of cultural materials beyond the level of one or a few artifacts. Locations of human activity not classifiable as sites by this definition are considered IOs. Site significance is defined by application of the NRHP criteria for determining significance.

All newly discovered sites and features will require notification of the BLM representative and SVW. Construction will cease in the vicinity of the discovery (at the archaeologist's discretion) until the BLM has inspected the site and has granted permission to continue. As a representative acting on behalf of the BLM, the archaeological monitor has the authority to order the construction related activities to cease. Adequate but reasonable time will be provided for the monitor to assess the find. This will only occur in a reasonably defined area in proximity to the discovery. If the monitor is unable to assess the find in a reasonable amount of time, the BLM archaeologist should be contacted for a final assessment.

After the appropriate course of action has been determined, the BLM, in consultation with the State Historic Preservation Officer (SHPO), will provide SVW with notification of its decision, including details of any actions that SVW must complete before authorization to proceed with construction is granted. SVW will provide written notification to the BLM and SHPO, including a statement of the nature, scope, and outcome of the actions completed. After SVW has successfully fulfilled any such responsibilities, the BLM will provide SVW with authorization to proceed with construction. SVW will not resume construction in the buffer area surrounding the discovery until it has received authorization from the BLM to proceed. The authorization may include a statement of any stipulations that will apply during or after the resumption of construction.

In many cases where finds are considered to be significant, controlled recording and/or excavation of features and deposits can occur during construction, with construction avoidance zones erected around the discovery area. Where discoveries are encountered that are not significant, these individual occurrences will be photographed and described and construction will be allowed to continue.

3.2 Discovery of Human Remains

Human remains and associated funereal artifacts may be discovered during construction, reclamation, or maintenance. If human remains are discovered under any circumstances, they will be secured and protected until such time as appropriate disposition has been determined, in accordance with applicable local, state, and federal statutes.

If human remains are encountered during construction, appropriate measures will be taken to protect the discovery from further disturbance until the discovery has been fully evaluated and the appropriate treatment of the discovery has been completed.

The notification process will be implemented by the archaeological monitor, including contacting the BLM. The BLM will be responsible for contacting the Sheriff and/or Coroner as deemed appropriate. If human remains are discovered on federal lands and they are determined to be aboriginal, the Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations will apply. A forensic expert may be required to determine whether the remains are Native American or Euro-American. If the remains are found to be Native American and the discovery is on BLM lands, the BLM will initiate the notification and consultation process involving the appropriate tribe(s).

Construction activities in the vicinity of the burial will cease while the BLM determines what appropriate consultation processes are required. After all construction activity has been halted and while the notification procedure is being implemented, steps will be taken to protect the human remains, including:

- Ensuring that no ground-disturbing activity resumes within a buffer zone of 30 m (98 feet) from the discovery;
- Preventing vehicle traffic through that portion of the area of the undertaking beyond that necessary to remove vehicles and equipment already within the area;
- Providing protection in the form of tarps, shoring, protection from the elements, and any other procedures necessary to ensure preservation of the remains;
- Restricting personnel in the vicinity, excluding the archaeological monitor, the BLM representative, and the supervising individual representing SVW; and
- Restricting photographs and/or removal of cultural materials.

The measures to protect the remains and any associated artifacts will remain in effect until SVW has received notice from the BLM to proceed with the construction activity in the buffer zone.

After the appropriate course of action has been determined, the BLM, in consultation with the SHPO, will provide SVW with notification of its decision, including specific details of any actions that SVW must complete before authorization to proceed with construction is granted. SVW will provide written notification to the BLM and SHPO, including a statement of the nature, scope, and outcome of the actions completed. After SVW has successfully fulfilled any such responsibilities, the BLM and/or SHPO will provide SVW with authorization to proceed with construction. SVW will not resume construction in the buffer area surrounding the discovery until it has received authorization to proceed. The authorization may include a statement of any stipulations that will apply during or after the resumption of construction.

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APPENDIX F

Avian and Bat Protection Plan

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AVIAN AND BAT PROTECTION PLAN FOR THE SPRING VALLEY WIND ENERGY FACILITY

Prepared for

Spring Valley Wind LLC
1600 Smith Street, Suite 4025
Houston, Texas 77002

Prepared by

SWCA Environmental Consultants
7373 Peak Drive, Suite 170
Las Vegas, Nevada 89128

SWCA Project No. 14417

October 2010

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1.0 INTRODUCTION

1.1 Background

In order to address the growing interest in developing wind energy resources and National Energy Policy recommendations to increase renewable energy production capability, the Bureau of Land Management (BLM) began evaluating wind energy potential on public lands and developing a wind energy policy.
In October 2003, the BLM started preparation of a *Wind Energy Development Programmatic Environmental Impact Statement* (PEIS) to analyze the potential impacts of wind energy development on public lands and to minimize those impacts to natural, cultural, and socioeconomic resources. The PEIS was published in June 2005, and in December 2005 the Record of Decision was signed to implement a comprehensive Wind Energy Development program on BLM-administered lands in the western United States. The program has established policies and best management practices (BMPs) to address the administration of wind energy development actions on BLM lands and has identified mitigation measures. The programmatic policies and BMPs of the Wind Energy Development Program allow project-specific analysis to focus on the site-specific issues and concerns of individual projects.
On August 24, 2006, the BLM Washington Office issued Instruction Memorandum (IM) 2006-216, Right-of-Way Management, Wind Energy Land Use Plan Amendments, Wind Energy. The IM provided guidance on issuing rights-of-way (ROWs) for wind energy testing, monitoring, and development. Until then, the BLM had an interim wind energy policy, issued in 2002.

In January 2006, Babcock and Brown (since acquired by Pattern Energy [Pattern]), through Spring Valley Wind LLC (SVW), applied for a testing and monitoring ROW in Spring Valley, north of Ely, Nevada. Since then, it has maintained anemometers to determine the suitability of the project for wind energy development. In October 2007, SVW applied for a wind energy development ROW grant from BLM. The ROW grant would be for the construction, operation, and maintenance of the 75-turbine, 150-megawatt (MW) Spring Valley Wind Energy Facility (SVWEF) and associated facilities. Additionally, a mineral materials permit would be issued for gravel pits and associated access roads connected to the facility. The SVWEF would be located on approximately 7,673 acres in the project area (Table 1) and consist of 75 turbines and associated infrastructure.

In December 2008, a new IM, 2009-044, was issued to update policy and give further guidance on processing Wind Energy Facilities (WEFs) on BLM-administered lands. SVW updated its Plan of Development (POD) to comply with the new guidance. The POD was tentatively finalized in October 2009 but may change in response to comments on the preliminary Environmental Assessment (EA).

The PEIS describes the types of impacts that may occur from wind energy development on BLM-administered lands, and the SVWEF EA provides site-specific analysis tiered to the PEIS. Using the EA and PEIS for guidance, the Avian and Bat Protection Plan (ABPP) for the SVWEF was developed in order to provide project-specific guidelines for mitigating avian and bat impacts that may result from the project.

In July 2010, a new IM, 2010-156, was issued to provide direction to renewable energy projects for complying with the Bald and Golden Eagle Protection Act. This ABPP has been prepared in compliance with the 2010 IM.

Table 1. Legal Description of Project Area

Township	Range	Section	Quarter-Quarter-Quarter Quadrangle
14N	66E	1	All
		2	All of SE
		12	All
		13	N1/2 of NW
			N1/2 of NE
			E1/2 of SE
			All of SENE
	67E	4	W1/2 of NW (or Lot 4 and All of SWNW)
			W1/2 of SW
		5	All
		6	All
		7	All
		8	All
		9	W1/2 of NW
			W1/2 of SW
			W1/2 of NENW
			W1/2 of SENW
			W1/2 of NESW
			W1/2 of SESW
		18	All
		17	All
		16	All of NWNW
15N	66E	35	All of SESE
		36	All of S1/2
	67E	29	All of SWSW
			W1/2 of SESW
		30	S1/2 of SW (or Lot 4 and All of SESW)
			S1/2 of SE
		31	All
		32	All of S1/2
			All of NW

1.2 Facility Description

The principal components of the SVWEF would consist of wind turbine generators (WTGs), an underground electrical collection system for collecting the power generated by each WTG, electrical substation and switchyard, access roads, Operation and Maintenance (O&M) building, temporary laydown and storage areas, concrete batch plant, sand and gravel source, fiber-optic communications, one permanent meteorological (MET) tower, two radar units, and a microwave tower. The short-term (the period from beginning of construction until reclamation) and long-term (the duration of the project) disturbance areas for this alternative are described in Tables 2 and 3. The SVWEF totals approximately

7,673 acres, all of which are on BLM land covered by the requested ROW. This is to allow for the necessary set back distances and spacing between individual WTGs and linear arrays. The total area estimated for use by the wind energy facility (including both short- and long-term disturbance) is approximately 430.1 acres, or approximately 5.6% of the total ROW.

Table 2. SVWEF Components: Maximum Short-Term Disturbance Summary Table

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Short-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	400[1]	N/A	217.5	0.028
Laydown, batching plant, and parking area	820	530	10.0	0.001
Access roads	129,542	40	118.96	0.016
Collection system	138,579	20	63.63	0.008
Fiber-optic line[2]	390	20	0.18	NA
Radar fiber-optic line	500	20	0.23	0.000
Gravel Pits A & B and access[‡]	660	660	10.0	0.001
Footprint overlap[≠]	N/A	N/A	−95.1	−0.012
Total			**325.4**	0.042

[1] This measurement represents the diameter of the disturbance area.

[2] Outside project area but contributes to overall disturbance footprint.

[3] 10.0-acre Gravel Pit B is an off-site existing disturbance and is not included in the overall disturbance acreage.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

Table 3. SVWEF Components: Maximum Long-Term Disturbance Summary Table

Facility Component	Disturbance Length (feet)	Disturbance Width (feet)	Long-Term Disturbance (acres)	% Project Area
Turbine foundations and crane pads (×75)	75[1]	N/A	22.5	0.003
Access roads (add 2 radar access roads – 0.23 acre each)	129,542	28	83.27	0.011
MET tower	50[1]	N/A	0.1	0.000
Spring Valley substation, Osceola substation, and O&M building (includes 2 Microwave Towers)	1,080	805	20.0	0.003
Radars	25	35	0.02	0.000
Fence[2]	34,470	12	9.5	NA
Footprint overlap[≠]	N/A	N/A	−30.72	−0.004
Total			**104.67**	0.013

[1] This measurement represents the diameter of the disturbance area.

[≠] Overlap is the intersection of two different component disturbance areas and is therefore removed from the total disturbance. For example, a temporary turbine work area may partially overlap the collection system. In that case, the overlapping turbine acreage has been subtracted in order to not double-count disturbance.

[2] Outside project area but contributes to overall disturbance footprint.

Since wind turbine technology is continually improving and the cost and availability of specific types of WTGs vary from year to year, a representative range of turbine types that are most likely to be used for the project are listed in Table 4. Seventy-five WTG sites have been identified that provide not only the highest wind speeds but also the most consistent wind resource, which provides the highest overall energy output and reliability. Each turbine experiences a small percentage of parasitic load, meaning that each turbine typically consumes between 5 and 10 kilowatts of power during operation. Additionally, a small amount of power is consumed by the substation, further reducing the amount of power available for output. Therefore, no matter which turbine is selected, no more than the maximum 149.1 MW agreed to under the Power Purchase Agreement (PPA) will be output into the system and somewhat less than that amount may be produced if the 1.8-MW turbines were selected.

Table 4. Wind Turbine Specifications

Turbine	Hub Height	Rotor Diameter	Total Height	Rated Capacity Wind Speed	Rotor Speed	Tower Base Diameter
2.3-MW Siemens	80 m	101 m	130.5 m	12–13 m/s	6–16 rpm	14.76 feet (4.5 m)
2.0-MW Gamesa G90/G97	78 m	90 m/97 m	125 m/126.5 m	15 m/s	9–19 rpm	13 feet (4 m)
RePower 2.0	80 m	92.5 m	126 m	12 m/s	9–18 rpm	13 feet (4.0 m)
1.8-MW V90 Vestas	80 m	90–100 m	125 m	12 m/s	9–14.9 rpm	< 15 feet

Notes: m/s = meters per second; rmp = rotations per minute.

Turbines would be placed in a series of east-west-oriented rows (or arrays) to best use Spring Valley's north-south wind flows. North-south-oriented rows cannot be used because they would reduce power generation to levels that the project would no longer be commercially viable. Turbines within each array would be connected by gravel surface access roads and underground 34.5-kilovolt (kV) collection circuits. To minimize downwind array losses, spacing between turbine rows would be at least 10× rotor diameters (RD) (1,010 meters [m]) and 2.4 to 3.5 RD (242–354 m) for in-row spacing. Turbine towers and foundations would be designed to survive a gust of wind more than 133.1 miles per hour (mph) with the blades pitched in their safest position. Turbine blade tip speed is variable and would not exceed 90 meters per second (m/s) or 201 mph. The total maximum rotor swept area for the facility would be 600,583.9 m^2. Turbine foundations would be approximately 8 feet deep, with a projection of approximately 6 inches above final grade, and would use approximately 350 cubic yards of concrete. Each tubular steel tower would have a maximum 15-foot-diameter (4.5-m-diameter) base. A detailed description of the WTG layout and operation can be found in the Spring Valley Proposed Wind Energy Project Environmental Assessment (BLM 2010).

The existing NV Energy 230-kV transmission line, which passes from east to west through the project site, would be the primary power transmission line for the SVWEF. A 34.5-kV underground electrical collector system would be installed to connect the turbines to the Spring Valley substation. The power would be stepped up by the main transformer at the Spring Valley substation to a 230-kV high-voltage (HV) system. The HV system would then be interconnected to the Osceola switchyard and the grid. For the connection of the Osceola Switching station to the existing transmission line, there would be a 400-foot overhead span from the existing transmission line connecting to the Osceola substation. In addition, there would be a 70-foot overhead span (no poles would be required) connecting the Osceola substation to the Spring Valley substation. Approximately 27.2 miles of collector cables would be placed underground in trenches that are adjacent to access roads. A detailed description of the electrical system can be found in the Spring Valley Proposed Wind Energy Project Environmental Assessment (BLM 2010).

1.3 Key Avian and Bat Laws, Regulations, Authorizations

The project is subject to all relevant federal, state, and local statutes, regulations, and plans as described in the EA. The key federal, state, and local agency approvals, reviews, and permitting requirements for avian and bat species that are anticipated to be needed are presented in Table 5.

Table 5. Key Avian and Bat Laws, Regulations, and Authorizations Table

Authorization	Agency Authority	Statutory Reference
Federal		
National Environmental Policy Act (NEPA) Compliance to Grant Right0of-Way (Tiered to Programmatic Environmental Impact Statement)	BLM	NEPA (Public Law [PL] 91-190, 42 United States Code [USC] 4321−4347, January 1, 1970, as amended by PL 94-52, July 3, 1975, PL 94-83, August 9, 1975, and PL 97-258, §4[b], Sept. 13, 1982)
Endangered Species Act Compliance	U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act (PL 93-205, as amended by PL 100-478 [16 USC 1531 *et seq*.]); 50 Code of Federal Regulations (CFR) 402
Migratory Bird Treaty Act	USFWS	16 USC 703–711; 50 CFR 21 Subchapter B
Bald and Golden Eagle Protection Act	USFWS	16 USC 668−668(d)
State		
Incidental Take Permit	Nevada Department of Wildlife	Nevada Revised Statutes 503.584–503.589; Nevada Administrative Code 503.093

Based on existing data and preconstruction surveys (SWCA Environmental Consultants [SWCA] 2009a, 2009b), the project footprint does not occur within a major migration corridor for birds. The closest major migratory corridor is a principle route of the Pacific Flyway that basically follows the Lahontan and Humboldt River valleys north and west of the project area. In terms of raptor migration specifically, the closest known major raptor migration site is at the Goshute Mountains, approximately 100 miles north of the project area; it is believed that most of the birds from this site travel down the Snake and Deep Creek ranges east of the project area or the Egan and Schell Creek ranges west of the project area. The regulatory framework for protecting birds includes the Endangered Species Act of 1973, as amended (ESA), the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA) of 1940, and Executive Order (EO) 13186. The PEIS discusses the ESA in Section 4.6.5.1, and other regulations stated above are discussed in Section 4.6.2.2.6 of the PEIS. All of the birds observed during preconstruction surveys are protected by the MBTA, with the exception of the European starling (*Sturnus vulgaris*). The MBTA prohibits the take of migratory birds and does not include provisions for allowing unauthorized take. This project affords substantial design measures to avoid and minimize the likelihood of take, but if take occurs, it will be reported to the U.S. Fish and Wildlife Service (USFWS) for further action. Additionally, this ABPP has been developed to meet BLM and USFWS requirements for addressing the ESA, MBTA, and BGEPA. Both the BGEPA and the MBTA prohibit take as defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, disturb, or otherwise harm eagles, their nests, or their eggs. Under the BGEPA, "disturb" means 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) 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. However, on September 11, 2009 (*Federal Register*, 50 Code of Federal Regulations [CFR] 13 and 22), the USFWS set in place rules establishing two new permit types: 1) take of bald and golden eagles that is associated with, but not the purpose of, the activity; and 2) purposeful take of eagle nests that pose a threat to human or eagle safety. At this time the USFWS is not currently issuing such permits for golden eagles due to concerns with possible declines in local and regional populations. However, the USFWS recommends that project proponents prepare an ABPP to avoid, minimize, and mitigate project-related impacts to birds and bats and specifically golden eagles to ensure no-net-loss to the golden eagle population. Pursuant to BLM IM 2010-156, the BLM will request "concurrence" from the USFWS that the ABPP meets specific requirements.

No bat species are currently listed under the ESA that occur in or near the project area or relevant bat-specific regulations that provide a similar regulatory framework as the MBTA or BGEPA. However, Rose

Guano Cave is located approximately 4 miles east of the nearest proposed WTG and serves as a migratory stopover for over 1 million individual Brazilian free-tailed bats (*Tadarida brasiliensis*) during fall migration (Sherwin 2009). Other bat species have also been recorded using the cave. For example, three pallid bats (*Antrozous Pallidus*) were recorded in 2009 during capture sessions (Sherwin 2009). Therefore, as part of the proponent's policy and commitment to environmental protection (see Section 1.4), this ABPP also includes extensive design and operation mitigation and monitoring measures.

1.4 Policy and Commitment to Environmental Protection

Pattern is an independent, fully integrated energy company that develops, constructs, owns, and operates wind power projects across North America and parts of Latin America. Pattern commenced operations in June 2009 as one of the most experienced and best capitalized renewable energy companies in the United States. SVW, through Pattern, is dedicated to delivering the highest values for their partners and the communities where they work, while exhibiting a strong commitment to promoting environmental stewardship and corporate responsibility. The SVW team has a proven track record of using science and ground-breaking technology to build wind projects that successfully coexist with wildlife and protect the environment. SVW is committed to building environmentally responsible renewable energy projects and continues to work closely with environmental agencies to develop appropriate mitigation measures to reduce impacts to wildlife.

1.5 Monitoring and Surveying to Date

In response to concerns about wildlife impacts resulting from the development of the SVWEF, a variety of field studies and literature reviews were initiated. Field studies consisted of avian and bat surveys, which are summarized below in Table 6.

Table 6. Monitoring and Surveying Efforts

Study	Taxa	Survey Dates
Migratory Raptor Surveys (SWCA 2009b)	Raptors	March–May 2007 and 2008 September–November 2007 and 2008
Migratory Passerine Surveys (SWCA 2009b)	All Birds	March–May 2007 and 2008 September–November 2007 and 2008
General Use Surveys (SWCA 2009b)	All Birds	July, August, December 2007 and 2008 January and February 2008
Breeding Bird Point-Counts (SWCA 2009b)	All Birds	June 2007 and 2008
Raptor Nest Surveys (SWCA 2009b)	Raptors	June 2007 and 2008
AnaBat Acoustic Surveys (SWCA 2009b)	Bats	July 2007–December 2008
Rose Guano Cave Telemetry and Radar Study (Sherwin 2009)	Bats	August and September 2008

1.6 Environmental Setting

Spring Valley is situated between the Schell Creek Range to the west and the Snake Range to the east, in White Pine County, Nevada. The portion of Spring Valley in which the project area is located is approximately 10 miles wide. The project area is generally bounded on the west side by Nevada State Highway 893 and on the south and east sides by U.S. Highway 6/50. The SVWEF would be built entirely on lands managed by the BLM. Detailed descriptions of avian and bat habitat and use in the project area can be found in the *Spring Valley Wind Power Generating Facility Final Preconstruction Survey Results Report for Birds and Bats* (SWCA 2009b).

1.6.1 Vegetation

According to the Ely Resource Management Plan/Environmental Impact Statement (RMP/EIS) (BLM 2007), Spring Valley is located in Major Land Resource Areas 28A and 28B. These resource areas are described in the RMP/EIS as occurring from 4,000 to 6,500 feet (1,219–1,981 m) above mean sea level when they occur in basins. These resource areas are indicated by such plant species as Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), black sagebrush (*A. nova*), winterfat (*Krascheninnikovia lanata*), Utah juniper (*Juniperus osteosperma*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and needle and thread (*Heterostipa comata*).

No specific field surveys were conducted for general vegetation; landcover vegetation data from Southwest Regional Gap (SWReGAP) (U.S. Geological Survey 2004) indicate that four vegetation types are present in the project area. Of these, three vegetation types constitute more than 99% of the project area: Inter-Mountain Basins Mixed Salt Desert Scrub, Inter-Mountain Basins Big Sagebrush Shrubland, and Great Basin Xeric Mixed Sagebrush Shrubland. The remaining 1% of vegetation is composed of Inter-Mountain Basins Greasewood Flat.

1.6.2 Bats

Pre-construction AnaBat acoustic surveys conducted from July 2007 through December 2008 identified 12 of 23 bat species known to occur in Nevada (SWCA 2009b). The bats observed were all BLM special-status species and include four state-listed species (Table 7). No species protected by the ESA are known to occur in the project area. AnaBat acoustic survey methods have inherent biases, as bat species that echolocate at a lower intensity have less chance of being detected (O'Farrell and Gannon 1999). Also, AnaBat acoustic equipment is limited in where it can be deployed. Bat activity data collected from the rotor swept area (RSA) were limited to one stratified microphone array installed on an existing MET tower. Despite these limitations, AnaBat acoustic methods are extremely useful for identifying baseline species data.

Table 7. Bat Species Identified from Acoustic Surveys, Spring Valley 2007–2008

Common Name	Scientific Name	6-Letter Code	State
Pallid bat	*Antrozous pallidus*	ANTPAL	Protected
Townsend's big-eared bat	*Corynorhinus townsendii*	CORTOW	Protected
Big brown bat	*Eptesicus fuscus*	EPTFUS	
Silver haired bat	*Lasionycteris noctivagans*	LASNOC	
Western red bat	*Lasiurus blossevillii*	LASBLO	Protected
Hoary bat	*Lasiurus cinereus*	LASCIN	
Western small-footed myotis	*Myotis ciliolabrum*	MYOCIL	
Long-eared myotis	*Myotis evotis*	MYOEVO	
Little brown bat	*Myotis lucifugus*	MYOLUC	
Long-legged myotis	*Myotis volans*	MYOVOL	
Yuma myotis	*Myotis yumanensis*	MYOYUM	
Brazilian free-tailed bat	*Tadarida brasiliensis*	TADBRA	Protected

Acoustic methods cannot be used to estimate populations, since an individual may be responsible for numerous detected calls; therefore, acoustic data are used to generate an index of activity (IA) value. Bat activity is presented as an IA value, which is obtained by taking the sum of 1-minute time increments for which a species was detected and dividing by the number of sampling nights (Miller 2001). The resulting value is then multiplied by a factor of 100 so that values consist of whole numbers (IA = minutes of activity/nights of recording × 100). The IA has been rounded to the nearest whole number for ease of use. Another useful feature of AnaBat acoustic data is the attached time and date information, which can be used to evaluate nightly and seasonal fluctuations in the IA.

Bat activity was generally much greater in survey locations near sources of water. Activity was dominated by four bat species: western small-footed myotis (*Myotis ciliolabrum*), little brown bat (*M. lucifugus*), long-eared myotis (*M. evotis*), and Brazilian free-tailed bat. The remaining eight species contributed 9% of all data. While all bats should be considered to be at risk from injury or mortality at WEFs, published literature indicates that some species are more commonly reported as mortalities in the western United States (Arnett et al. 2008; BLM 2005). For example, compilations of multiple bat mortality studies at other WEFs in the western United States, Arnett et al. (2008) and BLM (2005) have shown that the big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), western red bat (*Lasiurus blossevillii*), hoary bat (*L. cinereus*), little brown bat, and Brazilian free-tailed bat accounted for all identifiable bat carcasses from available bat mortality studies.

Nightly trends in bat activity were apparent, although these patterns differed between species. Four distinct patterns were demonstrated and included unimodal and bimodal distribution, in which dramatic peaks in activity were followed by equally dramatic drops in activity. These patterns contrasted with other patterns, the first of which exhibited an initial peak in activity that slowly declined throughout the night, and another that had no noticeable peaks, but sustained low levels of activity throughout the night. Figure 1 provides a look at nightly activity for all bat species, while Figure 2 provides nightly activity for the four dominant species.

Although the analysis of these trends has not taken into account other variables affecting them, such as weather, the large data set would suggest that these patterns are fairly consistent. Understanding nightly trends in activity may be useful from a management perspective, as these patterns could be used to identify times at night when the potential for impacts to bats is greatest. Peaks in activity could be used to design species specific mitigations, such as shutting down or feathering turbines during narrow windows of high activity.

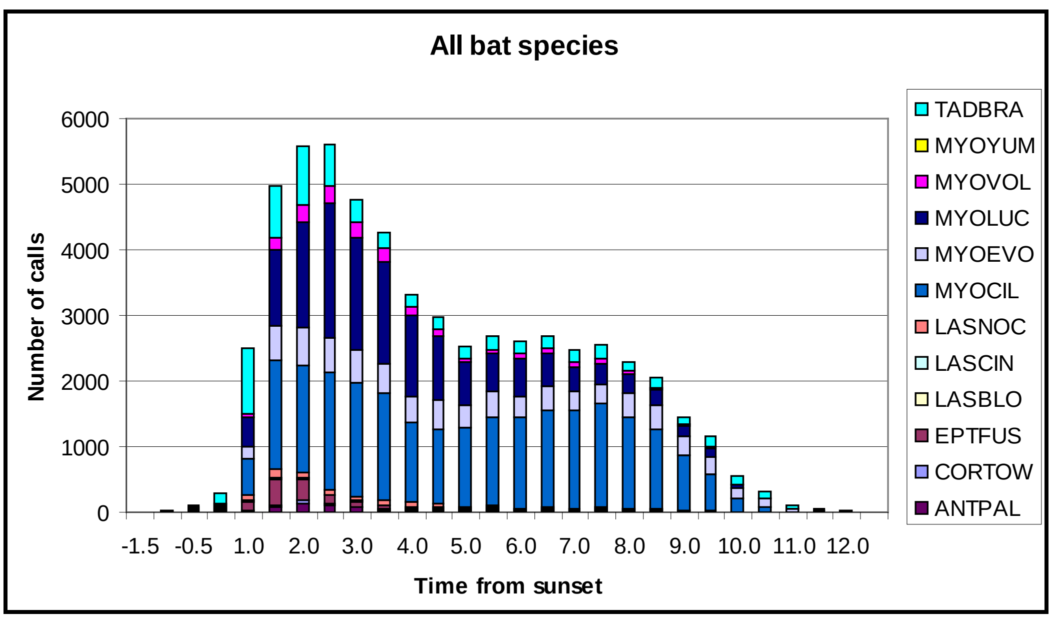

Figure 1. Nightly activity patterns of all bat species, 2007–2008.

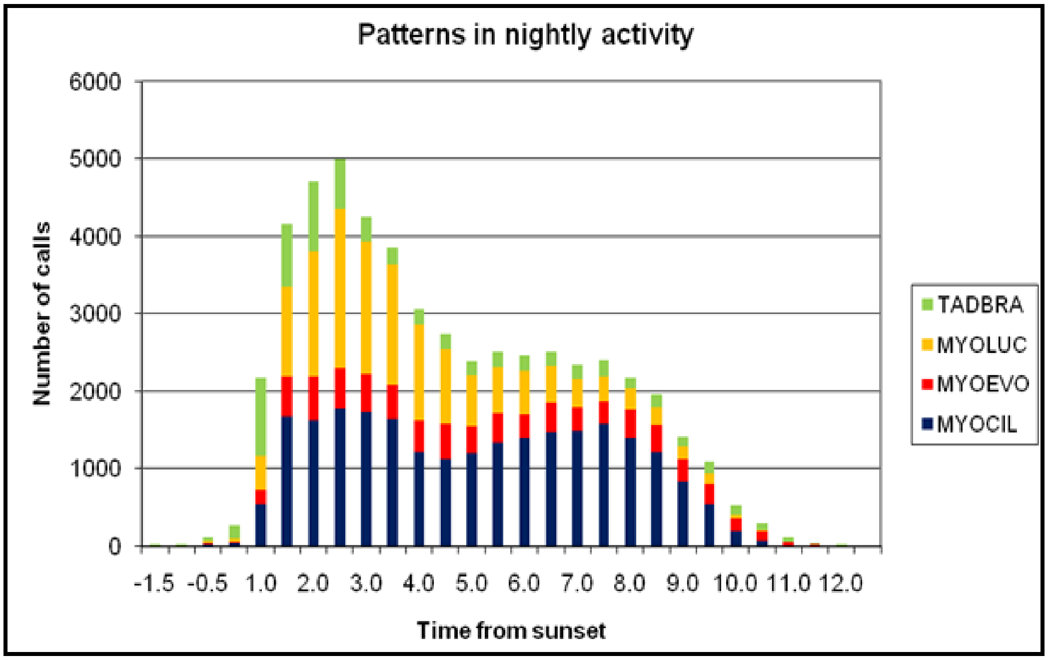

Figure 2. Nightly activity patterns of western small-footed myotis, long-eared myotis, little brown bat, and Brazilian free-tailed bat, 2007–2008.

In addition to nightly trends in activity, seasonal trends in activity were also observed. These trends followed patterns already documented by previous research, which has shown that migratory species tend to have spring and fall peaks in activity, with a more dramatic peak in the fall (Arnett et al. 2008). Interestingly, the silver-haired bat exhibited this pattern, but peaked earlier in the spring and later in the fall than the other migratory species. This is likely as a result of this species' preference for northern latitudes, higher elevations, and general tolerance of colder conditions (Bradley et al. 2006). In contrast, activity levels in the non-migratory species all followed a pattern of a gradual buildup in late spring, followed by a peak in mid-summer and a gradual decline in the fall. Figure 3 shows season activity patterns for all bat species, while Figure 4 compares activity between migratory and non-migratory species.

Seasonal trends in activity are useful for the same reasons as nightly trends. These can be used to assess when the potential for impacts to bats is greatest based on seasonality in order to craft effective mitigation measures. For example, mitigations for migratory species may only need to be enacted during the spring, summer, and fall, when the activity of these species is greatest.

1.6.3 Birds

Bird studies for the SVWEF incorporated several types of surveys, including raptor migration, general use, and breeding bird surveys. These efforts resulted in the observation of 92 species of birds, including diurnal raptors, passerines, waterfowl, and shorebirds. Total bird abundance was greatest during the winter months, when large flocks of horned larks (*Eremophila alpestris*) were present. Horned larks were the most abundant birds recorded during all surveys and were followed by common raven (*Corvus corax*), bohemian waxwings (*Bombycilla garrulus*), mountain bluebird (*Sialia currucoides*), and pinyon jay (*Gymnorhinus cyanocephalus*).

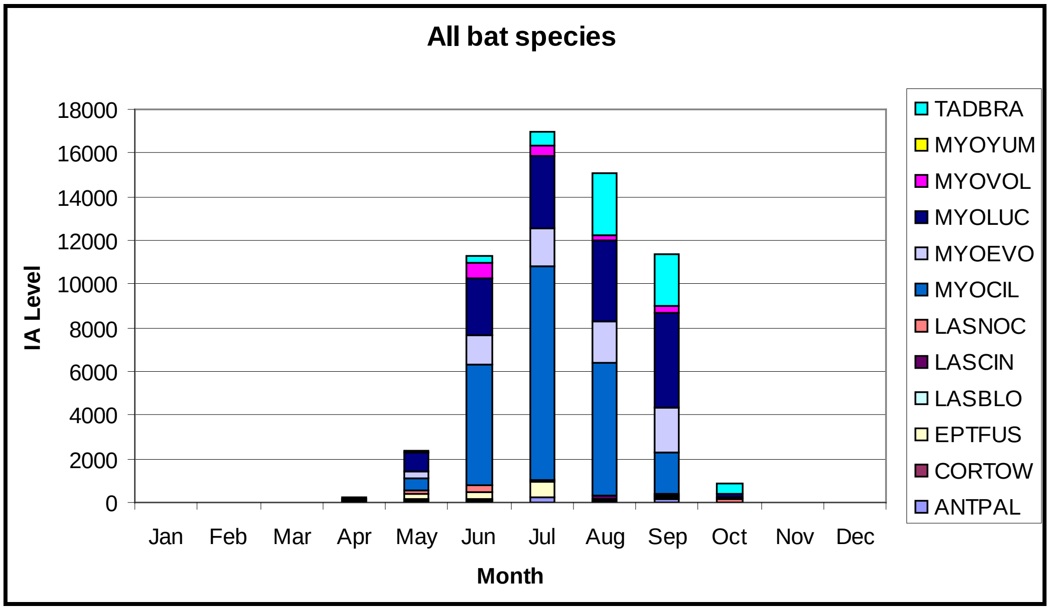

Figure 3. Seasonal activity patterns of all bat species, 2007–2008.

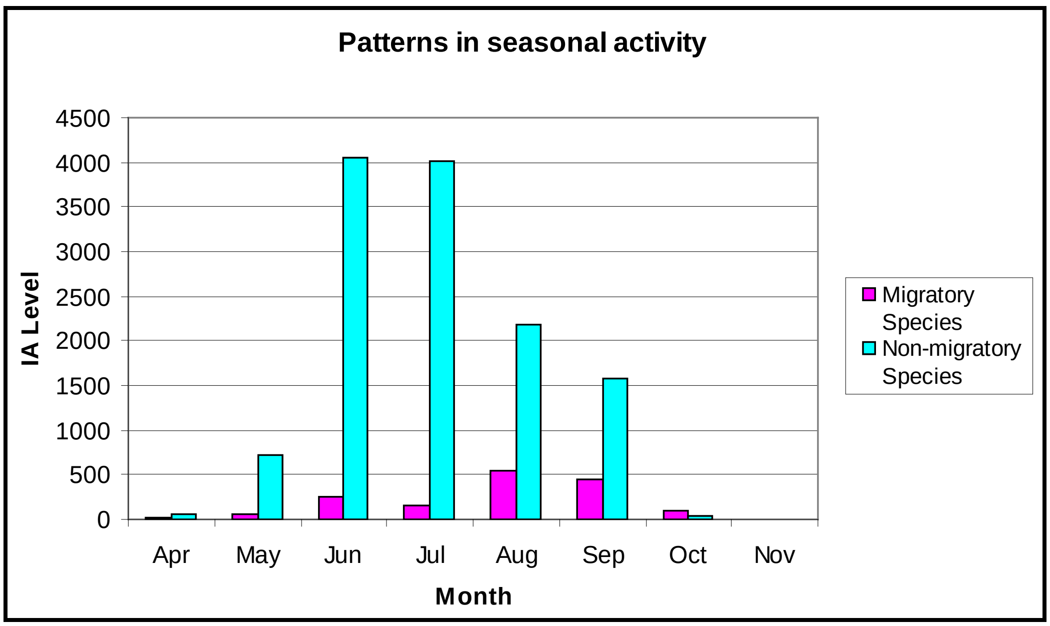

Figure 4. Seasonal patterns of migratory vs. non-migratory bat species, 2007–2008.

General bird surveys and migratory passerine surveys revealed that bird numbers in Spring Valley fluctuate greatly throughout the year. Numbers are fairly constant through the spring and early summer, but drop consistently just before migration. This could be as a result of birds congregating in staging areas before migrating south. If Spring Valley is not a typical staging area, then residents from Spring Valley would disperse elsewhere prior to migration. In both years, as the fall migration commenced, bird numbers began to greatly increase. These numbers only continued to increase throughout the fall, with the greatest spikes in activity occurring in December 2007 and February 2008, before dropping precipitously and returning to their relatively steady levels for the remainder of the year. Figure 5 shows overall avian abundance over time.

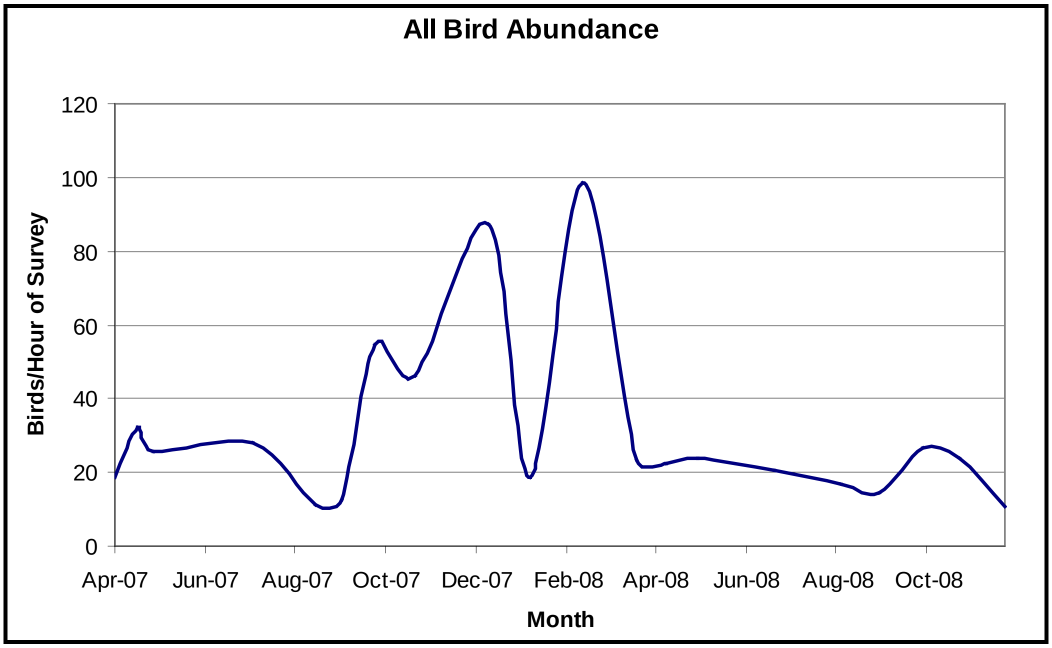

Figure 5. Overall bird abundance in Spring Valley throughout field surveys.

While raptors are not as abundant as passerines, they are a great concern at wind-generating facilities across the country. Raptor passage rates at the SVWEF (SWCA 2009b) are considerably lower than those at the nearby Goshute Mountains (Smith 2008); however, raptor mortalities are still a concern. Specifically, golden eagles (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), and ferruginous hawks (*Buteo regalis*) were all observed in the project area and flying within the RSA (SWCA 2009b). Additionally, concern over golden eagles has been recently elevated throughout its range.

Helicopter surveys performed specifically for nesting raptors within the project area and a 1-mile buffer revealed multiple nesting pairs of ferruginous and Swainson's hawks (SWCA 2009b). Of 25 raptor nests observed during helicopter surveys conducted in 2007 and 2008, three inactive nests and only one active raptor nest were observed in the current project area—a Swainson's hawk nest in the northern portion of the project area that fledged two chicks. The remaining nests are located within the initial northern project area or the 1-mile buffer but outside the current project area. Additionally, it is suspected that both northern harriers and American kestrels breed in the project area, although definitive evidence was never directly observed.

Golden eagles comprised 5% of the documented raptor migration through the project area. Eight individual golden eagle migrants were seen during 203.75 hours of observation, which is equivalent to one golden eagle every 25.5 hours. In contrast, HawkWatch International (HWI) has recorded 251 golden eagles per year over an average of 669.9 hours of observation each year at the Goshute Mountains Raptor Migration Project site (Smith 2010), or one golden eagle every 2.7 hours. Golden eagles have averaged less than 2% of the total migration at the Goshutes between 1990 and 2008. In conducting raptor migration counts at a number of sites near Ely, Nevada, HWI recorded 59 golden eagles during 329.89 hours of observation in the fall of 2004 and spring of 2005 (Smith 2005), or one golden eagle every 5.6 hours. For the Ely project, golden eagles comprised 5.8% of the overall migration for that project, similar to the 5.0% seen in Spring Valley. Overall, it appears that the migration through the project area is limited, and golden eagles appear to constitute a similar or slightly above normal percentage of all migrants. Figure 6 shows golden eagle abundance observed by month at the SVWEF.

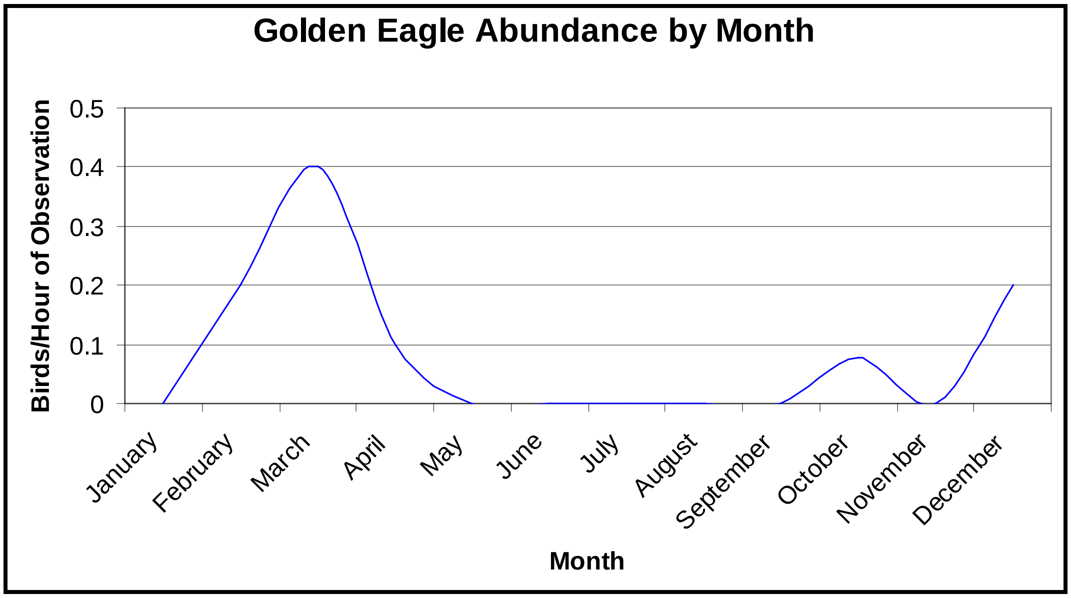

Figure 6. Golden eagle abundance at the SVWEF by month.

Golden eagles typically nest on large cliffs anywhere from 10 to 100 feet off the ground (Ehrlich et al. 1988). Golden eagles will also nest on tall, artificial structures, such as electrical poles and towers, and they may use these vertical structures to perch while hunting as well. They may also nest in trees, though less frequently. While there are no cliffs in the project area and very few large trees, multiple transmission lines run through the southern end of the project area and one runs along Nevada State Highway 893 on the western edge of the project area. However, no golden eagle nests were found on any of these transmission towers. Figure 7 shows all of the mapped cliff habitat within a 4-mile and 10-mile buffer of the project area, which provides the best nesting habitat near the project area. Nesting raptor data provided by the Nevada Department of Wildlife (NDOW) in 2010 shows one known nest approximately 4 miles from the project area and another within the 10-mile buffer (Figure 7). It should be noted that these nests have not been checked for activity in almost 30 years. In conducting surveys for the *Atlas of the Breeding Birds of Nevada* from 1997–2000, Floyd et al. (2007) found the closest breeding pair of golden eagles in the Schell Creek Range, northwest of the project area. This nest appears to be more than 10 miles from the project area, but the exact location is unknown.

In a study of four nesting pairs of golden eagles in southwestern Idaho, Collopy and Edwards (1989) found the average territory size to be 3,276 hectares (ha) (12.6 square miles). Assuming that the territory is roughly the shape of a circle extending an equidistance in all directions from the nest, most hunting activities during the nesting season would not extend much past 2 miles from the nest ($12.6 = \pi r^2$). Collopy and Edwards (1989) also site a study of Utah golden eagles that determined the average territory size to be 2,300 ha (8.9 square miles). This equates to a foraging extent of under 2 miles from the nest. Additionally, Pagel et al. (2010) site that golden eagles generally forage within 6 kilometers (3.7 miles) of the center of their territory. This territory data could explain the lack of observations in the project area from May through September. If there is very little nesting substrate in the project area and the closest nest is approximately 4 miles away (activity unknown), it is likely that golden eagles would spend very little time in the project area during any month of the breeding season. Therefore, it is assumed that there would be very little risk of mortality of golden eagles during the summer months.

According to the National Wind Coordinating Collaborative (NWCC 2004), it is estimated that 2.3 avian fatalities per turbine per year (3.1 per megawatt per year) occur in the United States, excluding California facilities, which are mainly composed of older generation turbines. Raptor fatalities in the Rocky Mountain Region are estimated at 0.03 raptor per turbine per year (0.05 raptor per megawatt per year).

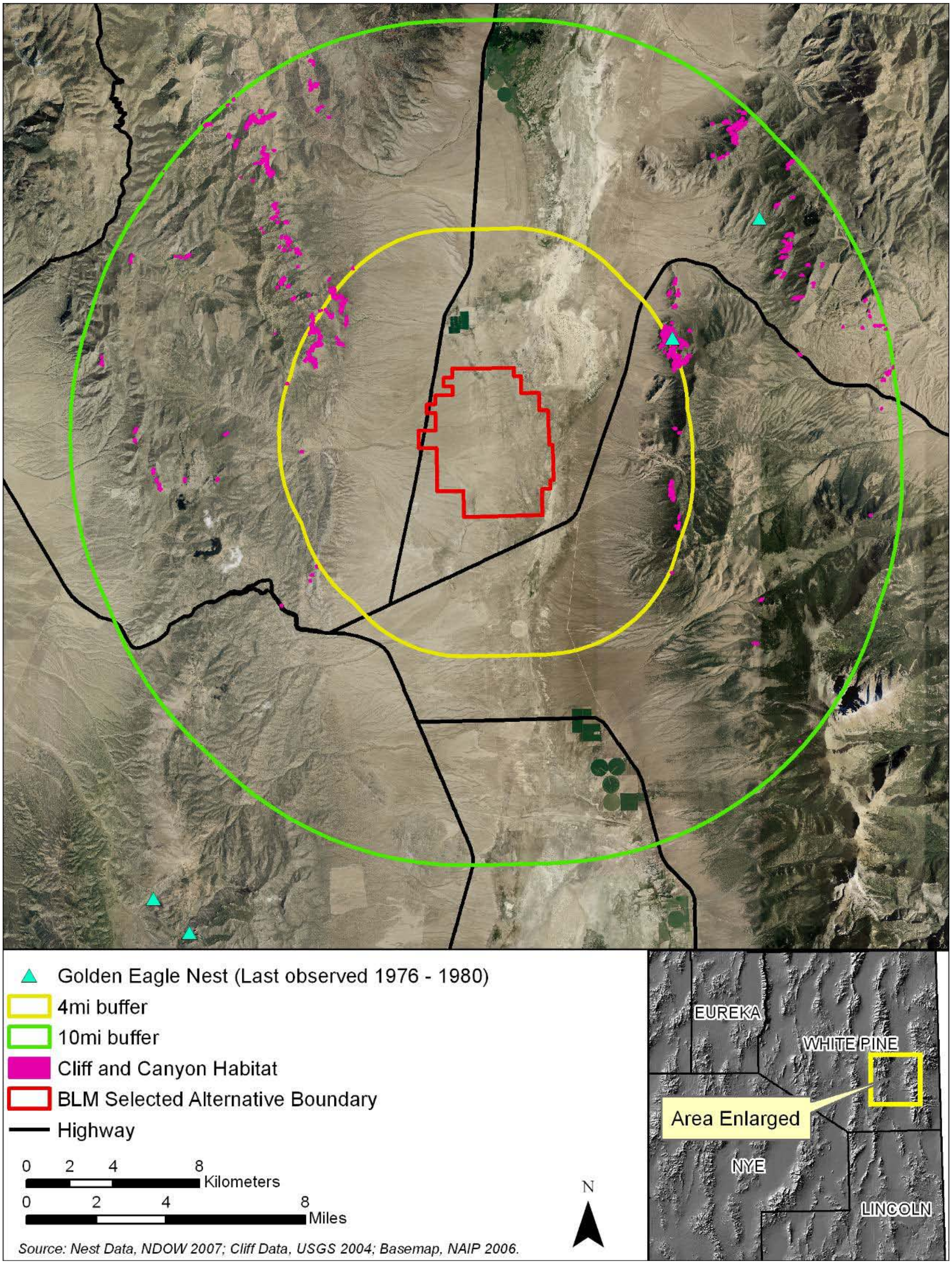

Figure 7. Golden eagle nesting habitat near the SVWEF.

2.0 MITIGATION, MONITORING, AND ADAPTIVE MANAGEMENT PROCESS

The process for addressing potential impacts to bird and bat species from implementation of the SVWEF is divided into three sections: 1) Initial Mitigation (i.e., curtailment, power line/pole retrofits, research, habitat enhancement, etc.), 2) Pre and Post-Construction Monitoring, and 3) Adaptive Management based on monitoring results.

Initial mitigation measures have been developed to address impacts that are likely to occur as disclosed in the EA. Post-construction monitoring is designed to evaluate the project during operation to determine actual impacts. Adaptive management has been designed to use monitoring data to evaluate whether impacts are nearing or exceeding those disclosed in the EA, and if so, to implement measures to reduce them to acceptable levels based on the EA or consider some other type of minimization or mitigation.

To help ensure that impacts to avian and bat species do not reach levels of significance (Sections 5.2 and 5.3) due to routine operations of the SVWEF, a Technical Advisory Committee (TAC) will monitor SVWEF activities, including mortality data, to determine the need for project mitigation. The TAC will consist of a single resource specialist (two members may be appropriate if one person specializes in birds and the other in bats) from the BLM, U.S. Fish and Wildlife Service (USFWS), and NDOW. The TAC will provide advice and recommendations to the BLM Authorized Officer on developing and implementing effective measures to monitor, avoid, minimize, and mitigate impacts to avian and bat species and their habitats related to operations. The BLM Authorized Officer will evaluate any recommendations of the TAC, including discussions with the proponent on new measures or measures that are not completely detailed in this ABPP, and make a decision on what measure(s) to require for implementation.

A TAC Lead will be designated for the group whose duties will include disseminating project data, including data on mortality events, setting up and moderating meetings, reviewing biweekly mortality data, and documenting mitigation recommendations for the SVWEF. Because the SVWEF occurs on BLM land and they are the federal decision-maker, BLM will provide a designated TAC Lead for the duration of the project. Because it is the TAC Lead's responsibility to coordinate meetings and involve all team members, the TAC Lead reserves the right to make recommendation decisions under extraordinary circumstances or when all TAC members are unable to meet.

A Memorandum of Agreement (MOA) will be signed by each party to ensure participation in the TAC. Unless there is a failure on the part of any of these representatives to respond or agree to participate, the TAC shall be formed prior to project operations.

The guiding principles, duties, and responsibilities of the TAC include the following.

- Approve TAC charter and sign MOA.
- Make recommendations based on best available science and to address specific issues resulting from this project.
- In the event decisions cannot be made by consensus, decisions of the TAC shall be made by simple majority vote.
- The TAC is only an advisory committee, and final management decisions will be made by the BLM Authorized Officer.
- Provide sufficient flexibility to adapt as more is learned about the project as well as strategies to reduce avian and bat impacts.
- Review initial and any subsequent revised monitoring protocols for mortality monitoring studies.

- Complete an annual review of predetermined mortality thresholds for mitigation (Section 5.0) and provide recommendations to the BLM Authorized Officer regarding any necessary adjustments to those thresholds.
- Review results of mortality monitoring.
- Recommend appropriate phase mitigation measure(s) to the BLM Authorized Officer for implementation in the event that thresholds for overall bats and/or birds have been exceeded (Section 5.2).
- Review species-specific mortality and recommend mitigation to the BLM Authorized Officer, if any, in the event that the species-specific thresholds for special-status species are exceeded (see Section 5.2).
- Review annual report on status of compliance with mitigation measures and permit conditions and provide recommendations to the BLM Authorized Officer, as necessary.
- Develop and recommend additional mitigation measures or research to the BLM Authorized Officer if predetermined mitigation is outdated or deemed ineffective or “unexpected fatalities” occur.
- Evaluate effectiveness of implemented mitigation strategies and provide the BLM Authorized Officer with recommendations based on findings.
- If selected as part of phased mitigation, recommend compensatory mitigation funding opportunities for implementation of off-site species or habitat enhancement or protection/conservation measures.
- The TAC will terminate when the BLM Authorized Officer determines that it is no longer a necessary pathway in reducing avian and bat impacts.

The TAC shall hold the first meeting prior to the commencement of operations to develop and approve the charter and requirements of this ABPP. The charter will include an MOA ensuring participation in the TAC and agreeing to how funds provided in this ABPP would be accessed. Thereafter, the TAC shall meet annually, unless data reveal that mortality thresholds have been exceeded. Attendance at TAC meetings shall be by invitation of its members only.

To ensure the TAC is fully functional, SVW will provide $290,000 over a period of ten years not to exceed $50,000 per year in the first three years, to assist with operational costs. Remaining funds would be contributed at an approximate rate of $20,000 per year during the remaining seven years. Funds would be deposited into an agreed upon interest bearing account and marked specifically for purposes of TAC operational expenses. Through an MOA, all TAC members would develop a cooperative agreement plan for how the funds are utilized.

3.0 INITIAL MITIGATION MEASURES

Initial mitigation measures will be implemented upon commencement of operation of the SVWEF.

3.1 Radar Monitoring and Mitigation System

SVW, through Pattern, has pioneered the use of avian and bat radar technology at wind energy sites over the past several years. In particular, they have been actively involved with DeTect (a leading avian radar manufacturer and operator) in developing technology to shut down turbines during high-risk periods for migrating birds, specifically when high avian activity is coupled with low visibility. This curtailment system is currently in place along the south Texas coast in Kennedy County for a project with high migratory bird use, Texas Gulf Wind, and to date, mortality has been at or below projected levels.
A similar study and mitigation strategy will be implemented at the SVWEF. However, the primary focus of the SVWEF radar monitoring system will be Brazilian free-tailed bats using Rose Guano Cave and any

related high-risk periods for bat movement as identified in the pre-construction bat studies (SWCA 2009a). Although focused on bat use associated with Rose Guano Cave, the radar system will also be used to mitigate other bat and avian species movements using the SVWEF.

The radar monitoring system will serve as a management tool to assist with selecting the most effective times for curtailment. The radar system will record timing (seasonal and temporal) of when groups of birds and bats (and insects) are present, as well as when and how many bats leave and enter Rose Guano Cave. Recordation of the exact number of individuals may be difficult due to picture resolution; however, estimates can be derived through plume size. These data will be used to help determine when curtailment and potentially even turbine shutdowns would be most effective. Given the proximity to Rose Guano Cave, this measure will be especially effective during August and September, when use is at its highest.

As described later in the phased mitigation measures, the radar system may also be used as an “early warning” system, providing advance detection of bird or bat activity that presents mortality risk with the ability to shut down turbines. If this method is implemented, any time the radar system detects a group of birds or bats (group size determined through at least a year of radar studies) within approximately 0.25 mile of the project area, coupled with low visibility for birds, and threshold number of species within the RSA, the system will communicate with the turbines and they will automatically break and feather until the group exits the project area. The distance out to which the radar could initiate shutdowns will be evaluated as enough data are collected and adjusted as necessary.

For the SVWEF, two permanent on-site MERLIN radar units (radar units) will be installed to analyze the presence and movement of birds and bats within the project area. Radar units will be placed in the northeastern and southeastern portions of the project area to provide coverage of the entire project area, as well as to detect bats from Rose Guano Cave prior to them reaching the project area. The radar units have a range of approximately 2.3 to 4.6 miles in the horizontal axis, depending on conditions, which can be used to identify the movement of birds and bats relative to the SVWEF. In the vertical axis, flight height information can be gathered in a radius of about 0.86 mile from the radar, but biological information is typically only considered valid out to 0.62 mile. These radar units will run full time and be connected directly into the Supervisory Control and Data Acquisition (SCADA) system so that radar data can be directly communicated to the turbines.

A Fixed-Beam Vertical Profile Radar (VESPER) will also be used to provide more detailed target categorization than the MERLIN radar system, specifically, differentiation and identification of birds, bats, and insect targets based on measurement of wingbeat frequencies as targets pass through the radar beam. The beam width will be sufficiently wide to allow even large, slow-flapping targets to reside in the beam for several seconds, allowing enough time for measurement. VESPER also provides higher-resolution altitude data for targets. It can track micro-insects up to at least 1,000 m, and larger targets such as bats can be tracked even higher. VESPER has a beam width of 7 degrees, and both the detection height and width are dependent on target size, with the effective range and beam width greater for larger targets. The more detailed target categorization and altitude data gathered by VESPER may provide valuable information on spatial and temporal distribution of insects; insects are the prey of bats and may be another important factor influencing bat distribution and therefore periods of high bat strike risk. Insect data measured by VESPER can be included in bat and bird mortality risk models and mitigation strategies for wind energy projects. The VESPER radar can be operated independently or in concert with the MERLIN radar. The location of the VESPER unit will likely be dynamic for the first several months of the study campaign. The optimum deployment of VESPER is highly dependent on bat movement and insect location. Proper deployment of the system will be assessed prior to any relocation necessary within the project boundary in an effort to minimize disturbance.

Additionally, an infrared beam-break system or remotely accessible bat acoustic detector will be placed at the entrance of the Rose Guano Cave to provide more detailed bat arrival and departure data.

This information will also provide presence/absence data important for teasing out how bat movements observed on radars relate to bats using the cave. The infrared beam-break system would be installed on a frame placed just inside the perimeter of the cave entrance, with infrared emitters and their corresponding receivers placed on opposite sides and the beam crossing the entrance. This system could be either battery or solar powered and the data would be stored in a data logger, although wireless data access may be available, depending on the final technology being used. The acoustic detector device, although it provides less detailed information, would still record a suitable index of bat activity based on frequency of bat calls and may prove to be more logistically feasible. If selected, this detector would be placed in a container near the cave entrance and would be solar powered, accessed remotely and wirelessly, and elevated on a pole if needed. The final selection of instrumentation and construction details will be determined after a site visit and assessment. The information collected from this system would provide additional data on use at the cave, which could help to refine mitigation measures and develop new measures.

3.2 Nocturnal Surveys

Radar that will already be on site will be used to monitor nocturnal avian activity. Data collected will be used to help develop additional monitoring (i.e., video surveillance) and to inform adaptive mitigation measures if avian mortality occurrences are found to correlate to nocturnal survey results.

3.3 Turbine Curtailment

Because of the close proximity of the project area to a known Brazilian free-tailed bat roost, curtailment of the turbines will be completed during the highest use periods of August 1 through September 31, from sunset to 4 hours after sunset (Sherwin 2009; SWCA 2009b). While curtailment is being initiated because of the presence of the Brazilian free-tailed bat, it is anticipated that this measure will also benefit other bat species.

A curtailment study will be completed during the first year to determine the most effective cut-in speed following methods based on those developed by Arnett et al. (2009) in which they evaluated the effectiveness of increasing cut-in speeds from an initial 4.0 m per second (m/s) to experimental speeds of 5.0 and 6.5 m/s. These increased cut-in speeds were effective in reducing bat mortality by 53%–87%, with minimal loss of revenue for the WEF (Arnett et al. 2009). No Brazilian free-tailed bats were evaluated in this study; therefore, testing is needed to determine the effectiveness of increased cut-in speed.

During this study, turbine cut-in speeds will be altered from sunset to 4 hours after sunset for a 62-day period (248 hours) during the highest use period of August 1 through September 31. The effectiveness of 4.0, 5.0, and 6.0 m/s cut-in speeds will be compared with the default turbine cut-in speed of 3.0 m/s, using 40 randomly selected turbines (~50%). Treatments will be randomly assigned to each of the 40 turbines for each night; however, the randomization will be limited so that each treatment type will be applied to 10 of the 40 turbines. All remaining turbines will be set at 5.0 m/s during that period to mitigate for potential impacts during peak Brazilian free-tailed bat activity.

During this study, a crew of biologists will conduct mortality searches every day for each of the 40 turbines studied. Searches will be completed within a 126 × 126–m area (approximately equal to the RSA), centered on the turbine mast, using transects spaced 6 m apart (Young et al. 2003). Biologists will record the location, species, sex, and age of each mortality observed. The condition of observed mortality will be recorded, and a photograph will be taken. After these data have been recorded, bats will be collected following standard protocols and kept for later use (upon approval by NDOW). Carcasses will either be used in searcher efficiency and carcass removal trials or provided to the TAC for additional studies such as necropsies and DNA and stable isotope analysis.

Searcher efficiency and carcass removal trials will be used to determine the average percentage of bats detected by surveyors and the persistence of bat carcasses in the field. These rates will be used improve the accuracy of bat mortality estimates. Detailed searcher efficiency and carcass removal protocols are explained in Sections 4.2 and 4.3, respectively.

The results of the curtailment study will be summarized in a report and provided to the TAC and BLM for review. The lowest of the cut-in speeds which demonstrates a statistically significant reduction in bat mortality would be selected as the default cut-in speed during the Brazilian free-tailed bat peak activity period throughout the duration of the operating life of the SVWEF. Statistical significance will be analyzed using an analysis of variance test. If neither of these turbine cut-in treatments have a statistically significant impact, the default cut-in speed for the turbines in the SVWEF would be set at 3.0 m/s or a cut-in speed recommended by the TAC based on current science specific to the project area may be used. If there is not enough statistical power from the study to determine an effective cut-in speed, the study will be redone with a larger dataset or a cut-in speed will be determined based on current relevant data.

Additionally, radar data may provide information that will allow curtailment to be limited to specific days within the season or times of day. If curtailment timing is changed, a study will be completed to assess the effectiveness of the change. If the initial curtailment plan/timing does not keep mortality under thresholds then additional amounts of curtailment are available as part of the phased mitigations. As part of those phased mitigation measures, adjustments to seasonal and daily timing may be made based upon mortality, radar, and AnaBat (for bats only) data.

3.4 Wildlife Fund

The project proponent will provide $500,000 ($200,000 prior to project construction, and $100,000 for the next three years) to fund wind/wildlife interaction studies, and habitat improvement and replacement projects. Funds would be deposited into an agreed upon interest bearing account and marked specifically for purposes of research, habitat improvements, and/or habitat replacement. Through an MOA, all TAC members would develop a cooperative agreement plan for utilization purposes, which could include required permitting, equipment, labor, and other related goods and services. The exact use of this money will be recommended by the TAC based on the results of the post-construction monitoring/mortality surveys and approved by the appropriate authorizing entity. Additionally, the BLM or other participating agencies may elect to contribute funding.

Examples of wind/wildlife research studies that could be funded through this program include:

- population-level studies for wildlife impacted by wind energy development in the region;
- effects of increased recreational use of facility access roads on wildlife; and
- the ability of deterrent devices to reduce impacts to birds and bats at WEFs.

3.5 Public Outreach

SVW will coordinate with key interest groups within the community to determine how capital contributions from the project can go toward local scholarship funds and/or worthwhile community projects. Additionally, SVW will join the White Pine County Chamber of Commerce and provide status updates on construction and operations which can be included in their publications. Lastly, a project fact sheet describing the project and measures that have been put in place to address avian and bat issues will be prepared and made available at the local BLM Ely District Office.

4.0 POST-CONSTRUCTION MONITORING

Post-construction monitoring for bats and birds is a critical component of this ABPP. The observations made during post-construction monitoring will be reported to the TAC, which will respond with appropriate management decisions should mortalities exceed the thresholds outlined in this ABPP (see Section 5.2). Post-construction monitoring will be completed for bats and birds concurrently, and detailed methods for these surveys are presented below. Since post-construction monitoring methods are constantly improving as researchers develop new and more accurate methods of survey, the TAC should consider recommendations to adopt new survey techniques and protocols as they become available.

Post-construction surveys will focus on mortality surveys for birds and bats. These surveys will be completed regularly to document the number and species of birds and bats killed as a result of the SVWEF. As part of these mortality surveys, the searcher efficiency rate (i.e., the ability of a surveyor to locate a mortality) and carcass removal rate (i.e., the average time that a carcass persists before a scavenger removes it) will be determined for bats and small and large bird size classes. For each mortality located, the appropriate (i.e., bat, small bird, large bird) searcher efficiency and scavenger removal rate will be used to estimate the actual number of bird and bat mortalities. Methods for completing post-construction surveys are described below.

4.1 Mortality Surveys

Mortality surveys for bats and birds will be completed for three years following construction. If mortality thresholds are being exceeded following the third year of study, the TAC may recommend that additional years of monitoring are required to evaluate the effectiveness of new mitigation. At such time that the BLM, in coordination with the TAC, has determined mortality thresholds are no longer exceeded, follow-up mortality surveys will be completed every fifth year until decommissioning to ensure that mortality levels remain below thresholds.

Mortality surveys will occur throughout the year to evaluate the overall impacts to bats and birds from the SVWEF. Surveys will be completed every other week for one-third of the operating turbines, with turbines grouped in threes and the middle turbine surveyed as the representative site for that group. In some instances, the number of turbines in a string will require turbines to be in groups of two or four, with one turbine selected for surveys. The Proposed Action would have 25 groups of turbines: three groups of two turbines, three groups with four turbines, and 19 groups with three turbines. The Alternate Development Alternative (if selected) would also have 25 turbine groups: two groups with two turbines, two groups with four turbines, and 21 groups with three turbines. Searches will be conducted within a 126-m x 126-m (170,900-square-foot) survey area (just larger than the RSA), centered on the WTG mast (Young et al. 2003). Transects will be spaced at 6 m (19.6 feet), with surveyors searching for 3 m (9.8 feet) of either side of the transect. Large raptors tend not to be scavenged and are easily detectible; therefore, due to the recent concerns over golden eagles, if a golden eagle fatality is discovered, the remaining unsurveyed turbines will be searched for additional eagle fatalities during that survey period.

Additionally, daily searches of the representative turbines will be conducted for a seven-day period, each season, corresponding to the timing for searcher efficiency (see Section 4.2) and carcass removal (see Section 4.3) trials. The seasonal daily data will provide additional mortality information that will help refine correction factors in order to provide more precise data. For the fall season, daily searches of 40 turbines will occur throughout August and September, and the additional week of daily searches will not be completed as in the other three seasons.

Data collected for each carcass will include estimated time since death, condition, type of injury, cover type, distance to nearest WTG location, distance to nearest road, and distance to nearest structure. All observed carcasses will be photo-documented and identified using the *Key to the Bats of Nevada*

(Bradley et al. 2006) and *The Sibley Guide to Birds* (Sibley 2000), respectively. All mortalities that cannot be identified will be recorded as an unidentified bat or bird. Contingent upon approval and permit by NDOW and the USFWS, it is recommended that carcasses be collected for use in searcher efficiency and scavenger removal trials. If requested by the TAC, collected carcasses may also be frozen and provided to the TAC for further discussion on the viability to perform necropsies and DNA and stable isotope analysis. With respect to eagles, the USFWS Reno Office of Law Enforcement (OLE) sends these carcasses to the National Eagle Repository; therefore, a freezer will be available at the O&M building on site and all eagle carcasses will be frozen and stored on site until OLE can retrieve them.

Searcher efficiency (see Section 4.2) and scavenger rate (see Section 4.3) studies will be used to develop correction factors that will be applied to mortality findings for each surveyed turbine. The corrected data for surveyed turbines will be used to evaluate the mortality per turbine thresholds described in Section 5.2. Additionally, survey intervals may need to be adjusted based on the findings for these studies in order to ensure precise correction factors, as described by Huso (2008).

4.2 Searcher Efficiency Trials

Searcher efficiency trials will be conducted throughout the year to correct observed bat and bird mortalities for bias created by the ability of the surveyor to detect bat and bird carcasses. These will be conducted for each searcher to address differences between searchers. Searcher efficiency trials will be completed during each season to account for different field conditions (i.e., snow, dense spring vegetation, dry summer vegetation) that may affect the ability of the surveyor to locate carcasses. Seasons will be defined as described by Erickson et al. (2003): spring migration (March 16–May 15), breeding season (May 16–August 15), fall migration (August 16–October 31), and winter (November 1–March 15). Although seasonal trials will not address fluke events, such as snow in June, they will address the overall time period.

Separate searcher efficiency rates will be determined for bats, small birds (passerines), and large birds (raptors). In order to have an adequate sample size (> 50, Huso [2008]), 20 carcasses will be used for each rate. Bat carcasses collected from the SVWEF will be used for bat searcher efficiency trials, as available. If an insufficient number of bat carcasses are available, small, drab passerines or brown mice carcasses will be used as substitutes. A minimum of two distinct sizes of bird carcasses will be used to determine searcher efficiency rates for passerines and larger birds. As available, bird carcasses collected from the SVWEF will be used in the searcher efficiency trials; however, substitute carcasses may be used as necessary. Substitute small bird carcasses may include species such as house sparrows (*Passer domesticus*) and European starlings, while carcasses substituted for the large bird size class may include waterfowl, pheasants, rock doves, or domestic fowl. In all cases, carcasses used will either be non-native, non-protected species provided by an authorized agency, or species collected through permitted take.

Prior to initiating the searcher efficiency trial, carcass locations will be randomly generated but constrained so that no more than three carcasses will be located at any one turbine at a time. An additional biologist who is not participating in the searcher efficiency trials will plant carcasses in pre-determined locations. Carcasses will be dropped from waist level, so that they land in a random position and location. The position and location will be recorded for later comparison with actual mortalities.

Bat carcasses will be marked by means of pulling an upper canine tooth as described by Arnett et al. (2009). Similarly, birds will be marked by notching the beak in order to avoid using chemically based marking methods, which may influence scavenger removal rates. When surveyors located a marked carcass, they will note the finding and notify the biologist who planted the carcass. The percentage of planted bats and birds located by surveyors will be used to generate a correction factor to estimate the actual number of bats killed, based on the number of actual mortalities observed.

4.3 Carcass Removal Trials

Carcass removal trials will be completed seasonally as described above in Section 4.2. Different seasonal rates for carcass removal are necessary to address changes in the scavenging throughout the season, as well as over time, as scavengers adapt to a novel food source. Carcasses will be placed as described for searcher efficiency trials. Carcasses will be checked at 1, 2, 3, 4, 5, 6, 7, 14, 21, and 28 days following placement, or until they are all removed. Separate carcass removal rates will be determined for bats, small birds (passerines), and large birds (raptors). Carcasses used for scavenger trials will be obtained as described above in Section 4.2. All animals used in the carcass removal trials will be handled with disposable nitrile gloves or an inverted plastic bag to avoid leaving a scent on the carcasses and interfering with the scavenger removal trial (Arnett et al. 2009).

4.4 AnaBat Acoustic Surveys

Post-construction bat acoustic surveys will be completed throughout the post-construction studies in order to help correlate bat activity levels with mortality events. One permanent MET tower will be installed at the SVWEF to measure weather conditions. Stratified AnaBat acoustic arrays, similar to those described by Arnett (2005), will be installed on this MET tower, with microphones installed at heights of approximately 3 m (9.8 feet), 30 m (98.4 feet), and 60 m (196.8 feet). All AnaBat acoustic data will be analyzed as described by O'Farrell and Gannon (1999) at least every 6 months. These data will be used to study trends in pre- and post-construction bat activity levels with impacts from wind energy turbines and will be used to help adjust curtailment times. It is hoped that eventually, pre-construction survey data would be able to be used to predict post-construction bat mortality levels.

4.5 Raptor Nest Surveys

Nest surveys will be conducted prior to the nesting season (approximately March 15 to July 30) and once each month during the nesting season during the first three years and every fifth year after that. Aerial or ground based raptor nest surveys will be conducted within the entire project area and a 1-mile buffer for raptors (BLM 2007), except for golden eagles. Golden eagle search distances will be 10 miles from the project area focused on suitable nesting habitat, based on current USFWS guidance. The complete 10-mile search area will be limited to once at the beginning of the golden eagle nesting season with monthly follow-up surveys only being completed for identified golden eagle or potential golden eagle nests. Where appropriate, activities will be restricted from May 1 through July 15 within 0.5 mile of any raptor nest site that has been active within the past 5 years. Nest locations found within the project area and within buffer will be documented by noting the species, dates of activity, Universal Transverse Mercator (UTM) NAD 83 coordinates, nest contents (where possible), and behavior. The data will be presented to the TAC to determine whether mitigation should be recommended to reduce impacts to nesting activities. Active raptor nests will be monitored to track the breeding success of resident raptors and evaluate the effectiveness of mitigation measures, if any are applied.

4.6 Avian Monitoring

To provide a comparison between pre-construction use and post-construction use at the site, avian point count surveys will be conducted twice each month during the first two years of operation. Point-count surveys will be completed using the same methods as pre-construction studies. Basic methods will include general use point-counts in the first few hours of the morning, followed by raptor counts during the middle of the day, and several hours of general use point-counts in the evening. General use point-count data will be collected to provide an accurate comparison between pre- and post-construction use to inform our understanding of avian exposure and probability of mortality as well as behavioral responses to the facility. Raptor count data would be collected to help determine how post-construction use compares to recorded mortality.

4.7 Reporting

Annual reports will be completed in the first quarter of each subsequent year. Reports will detail the findings of mortality surveys, raptor nest surveys, and AnaBat acoustic surveys. The results of the searcher efficiency and carcass removal trials will be described, and these rates will be used to correct the observed mortality rate. The most recent and acceptable methods (such as Huso 2008) will be used to determine mortality estimates.

In addition to the formal annual reports, data forms and a series of mortality tracking spreadsheets (Appendix A) will be submitted to the TAC Lead within one week following completion of each round of mortality monitoring surveys. The spreadsheet will be used to track the total number of mortalities of each species so that management actions can be implemented immediately should any avian or bat mortality threshold be exceeded.

The USFWS will also set up an account on their Migratory Bird Reporting site to document bird mortalities. Data will be entered into this system immediately following completion of the survey round tracking sheets. If golden or bald eagle mortalities are recorded, this data will be entered within 24 hours of observation. This data will be reviewed by the USFWS OLE. Furthermore, these data as well as any other data (raptor nest surveys, productivity, Anabat results, etc.) will be provided to the Nevada Fish and Wildlife Office (NFWO). Unless the TAC lead considers it necessary for immediate contact, data will be provided directly to the NFWO on an annual basis.

Finally, data collected from these studies will be made available to the TAC and other parties interested in publishing findings in peer-reviewed journals.

5.0 ADAPTIVE MANAGEMENT

The adaptive management techniques described in this section have been developed to ensure that potentially significant levels of mortality from operation of the SVWEF are effectively mitigated. This section describes different mitigation phases that will be applied based on mortality thresholds for avian and bat species. Changes in federal, state, and/or BLM status for wildlife species occurring within the project area may result in the addition of, or changes to, adaptive management strategies, as determined by the BLM through TAC recommendations.

5.1 Adaptive Management Process

A set of mortality thresholds has been designated for overall avian and bat species (see Section 5.2), as well as federally listed Threatened/Endangered (T/E) and state protected species (see Section 5.3). The TAC Lead will be provided a running mortality count every two weeks for review. The TAC will meet to discuss mitigation needs if the TAC Lead determines that a mortality threshold has been exceeded. At a minimum, the TAC will meet annually to review data and determine whether designated thresholds are still appropriate or whether they should be adjusted.

If mortality thresholds are exceeded, the TAC will be responsible for identifying and recommending suitable mitigation(s) from the appropriate mitigation phase identified in Section 5.4. The TAC may recommend one or multiple measures identified for that phase. In place of the listed mitigation measures, other measures of similar type (i.e., cost, level of effort, utility) may also be implemented.

The first time mortality thresholds are exceeded, mitigation will be selected from Phase I Mitigation, if determined necessary by the TAC and authorized by the BLM Authorized Officer. If the mortality thresholds are exceeded for a second time (threshold count starts over at zero each time a new mitigation measure is implemented), measure(s) from Phase II Mitigation would be available for selection. All previously implemented measures would continue to be implemented as well, unless a higher-phase mitigation replaces an old measure, i.e., increasing the amount of curtailment. Measures from earlier phases that have not been implemented may also be recommended for implementation by the TAC. This process would continue until thresholds are no longer exceeded. If thresholds are still exceeded following implementation of all mitigation measures for all phases, the BLM would meet with the TAC, other appropriate land and wildlife management agency representatives, and the proponent to determine necessary management strategies. The adaptive management process is depicted in Figure 8 below.

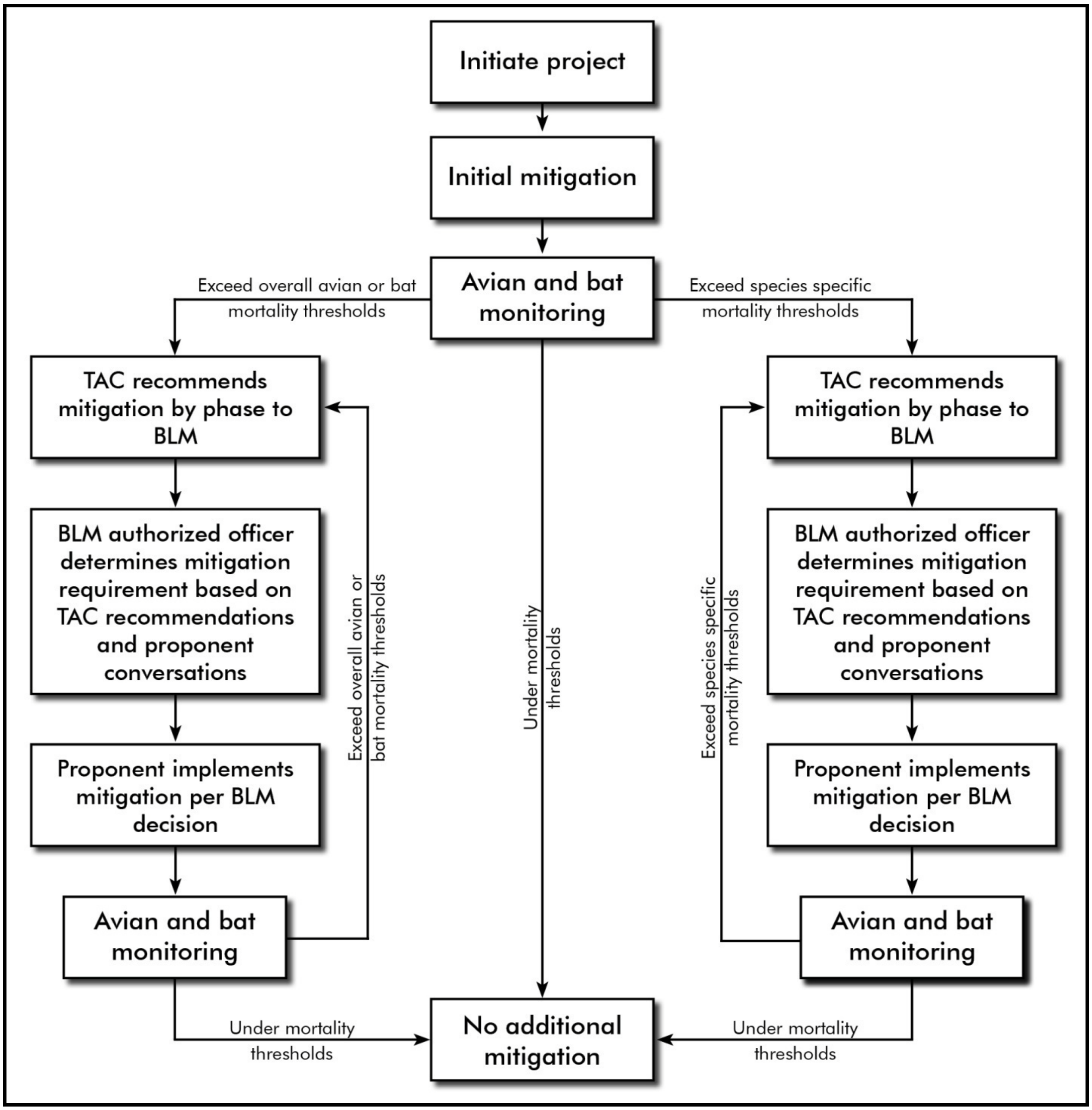

Figure 8. Adaptive Management Process.

5.2 Overall Avian and Bat Mortality Thresholds

Yearly mortality thresholds for overall avian and bat species were determined using a regional average of 11 mortality monitoring projects that occur in similar habitat (Table 8). It is understood that mortality estimates for these projects, excluding the Judith Gap Study (TRC Environmental Corporation 2008), have been adjusted to account for both searcher efficiency and scavenging rates. It is unknown whether correction factors have been applied for Judith Gap. Thresholds were developed through coordination between the BLM, NDOW, USFWS, and other wildlife professionals/experts. However, it is assumed that these thresholds are a starting point and that the TAC will review them annually to determine their effectiveness as well as to determine whether new data are available that would help refine them; it is also assumed that the TAC will provide recommendations to the BLM Authorized Officer regarding whether or not to increase or decrease them. Additionally, if new mortality estimators are used, such as Huso (2008), thresholds may need to be adjusted to be consistent with new methods.

If any of the criteria below are met, mitigation will be required and the TAC will meet to determine the appropriate measure for recommendation to the BLM Authorized Officer:

- Average mortality across all surveyed WTGs in the SVWEF (25 WTGs) exceeds the average for bird mortality per WTG per year (2.70) identified in Table 4.
- Average mortality across all surveyed WTGs in the SVWEF (25 WTGs) exceeds the average for bat mortality per WTG per year (2.56) identified in Table 4.
- Mortality at any representative WTG surveyed exceeds 10.0 bats and/or birds per year.

Table 8. Comparison of 11 Operating Wind Projects with Habitat Types Similar to Spring Valley

Reference	WEF Study Area Location	Dates of Study	Turbines in WEF	Turbine/Project MW	Avian Mortality per Turbine per year	Bats Mortality per Turbine per year
Young et al. (2003)	Foote Creek Rim, WY	11/98–6/02	69	600 kilowatt (kW) / 41.4 MW	1.50	1.34
Erickson et al. (2003)	Nine Canyon, WA	09/02–08/03	37	Bonus 1.3 MW / 48.1 MW	3.59	3.21
Erickson et al. (2004)	Stateline, OR/WA	01/02–12/03	454	Vestas 660 kW / 299.64 MW	1.93	1.12
Johnson et al. (2003)	Klondike, OR	02/02–02/03	16	Enron 1.5 MW / 24 MW	1.42	1.16
Erickson et al. (2000)	Vansycle, OR	01/99–12/99	38	Vestas 660 kW / 24.9 MW	0.63	0.74
TRC (2008)	Judith Gap, MT	Fall 06–Spring 07	90	GE 1.5 SLE / 135 MW	4.52	13.40
NWC and WEST (2007)	Klondike II, OR	2006	50	GE / 75 MW	4.71	0.63
Young et al. (2006)	Combine Hills, OR	02/04–02/05	41	Mitsubishi MWT-1000A / 41 MW	2.56	1.88
Kronner et al. (2008)	Big Horn, WA	2006–2007	133	GE / 199.5 MW	3.81	2.86
Erickson et al. (2008)	Wild Horse, WA	01/08–12/08	127	V80 / 229 MW	2.79	0.71
Young et al. (2007)	Hopkins Ridge, WA	01/06–12/06	83	Vestas / 150 MW	2.21	1.13
Average					**2.70**	2.56

5.3 Overall Avian and Bat Mortality Mitigation Phases

One or multiple measures under a mitigation phase may be applied if mortality thresholds for birds or bats are exceeded. Phases are to be implemented chronologically as avian and/or bat thresholds are repeatedly exceeded, until thresholds are no longer exceeded. Mortality thresholds for birds and bats may be exceeded at different periods throughout the project; therefore, mitigation phases for birds and bats may differ. In the instance that a similar mitigation type (i.e., turbine curtailment) for birds and bats is selected, only the highest phase would apply (i.e., if in Phase I for birds and Phase III for bats, Phase III applies for both). Mitigation measures described below include actions that may require analysis as required by the National Environmental Policy Act (NEPA), which would be paid for by the proponent. Approximate costs and timeline for appropriate NEPA analysis, if necessary, should be considered as part of the mitigation selection process. Mitigation phases are summarized in Table 9 and described in detail below.

Table 9. Summary of Mitigation Phases

Mitigation Phase	Turbine Curtailment	Direct Mitigation[≠]
Phase I	Up to 744 hours of cut-in speed curtailment	Relocate nests if it is shown that specific resident bird species are being impacted; Retrofit up to 10 power poles; other direct mitigation as recommended by the TAC.
Phase II	Up to 900 hours of cut-in speed curtailment; WTG shutdowns for up to the equivalent of 15,000 turbine hours	Install avian flight-diverting poles in front of primary flight paths as shown by radar and mortality data; Retrofit up to 10 power poles; other direct mitigation as recommended by the TAC.
Phase III	Up to 1,080 hours of cut-in speed curtailment; WTG shutdowns for up to the equivalent of 22,500 turbine hours	Paint one turbine blade black in each group, in accordance with the color scheme suggested by Hodos (2003); Retrofit up to 10 power poles; other direct mitigation as recommended by the TAC.
Phase IV	Up to 1,080 hours of cut-in speed curtailment[±]; WTG shutdowns for up to the equivalent of 30,000 turbine hours[±]	Retrofit up to 10 power poles; other direct mitigation as recommended by the TAC.
Phase V	Up to 1,080 hours of cut-in speed curtailment; WTG shutdowns for up to the equivalent of 37,500 turbine hours[±]	Retrofit up to 10 power poles; other direct mitigation as recommended by the TAC.

[±] Additional cut-in speed curtailment hours may be utilized for an equivalent reduction (i.e., power generation loss is equivalent or less) in shutdown hours.

[≠] In place of the listed mitigation measures, other measures of similar type (i.e., cost, level of effort, utility) may also be implemented.

5.3.1 Phase I Mitigation

TURBINE CURTAILMENT

- Implement cut-in speed curtailment for up to 744 hours per year (i.e., the equivalent of 62 days per year, 12 hours per day). Additionally, adjustments to seasonal and daily timing may be adjusted based on mortality, radar, and AnaBat (for bats only) data. Cut-in speed changes should not exceed 12 hours per day. A curtailment measure must be in place long enough to determine its effectiveness before an additional phased mitigation is implemented. However, no more than two phases of curtailment will be implemented in a single year. If thresholds are exceeded after implementing a second phase of curtailment in a single year, the TAC will meet and discuss other appropriate mitigation measures. Additional curtailment phases within the same year would require proponent approval. It should also be noted that the phased measures provide the maximum that can be allowed for an entire year, but based on data, the maximum may not be needed initially. The TAC may recommend using a portion of the available curtailment time to address a mortality event, and if thresholds are still exceeded in that year, they may increase that time to the maximum within the same phase.

DIRECT MITIGATION

- As approved by the necessary entities, placement of visual markers on power lines in the valley to minimize collision by raptors and other migrating birds.
- As approved by the necessary entities, up to an additional 10 power poles (see Section 5.4.1, first bullet) determined to be unsafe will be retro-fitted and raptor proofed according to current Avian Powerline Interaction Committee (APLIC) guidelines (APLIC 2005).
- Relocation of nests if it is shown that specific resident bird species are being impacted and it is determined appropriate by the TAC and USFWS. All necessary permits would be obtained from the USFWS and NDOW.

5.3.2 Phase II Mitigation

TURBINE CURTAILMENT

- Implement cut-in speed curtailment for up to 900 hours per year (i.e., the equivalent of 75 days per year, 12 hours per day). Additionally, adjustments to seasonal and daily timing may be adjusted based on mortality, radar, and AnaBat (for bats only) data. Cut-in speed changes should not exceed 12 hours per day. A curtailment measure must be in place long enough to determine its effectiveness before an additional phased mitigation is implemented. However, no more than two phases of curtailment will be implemented in a single year. If thresholds are exceeded after implementing a second phase of curtailment in a single year, the TAC will meet and discuss other appropriate mitigation measures. Additional curtailment phases within the same year would require proponent approval. It should also be noted that the phased measures provide the maximum that can be allowed for an entire year, but based on data, the maximum may not be needed initially. The TAC may recommend using a portion of the available curtailment time to address a mortality event and if thresholds are still exceeded in that year, they may increase that time to the maximum within the same phase.
- Implement shutdowns corresponding to highest activity periods based on mortality survey, radar, and AnaBat (bats only) data, for up to the equivalent of 15,000 turbine hours (a turbine hour is the amount of time one turbine is or is not operating, i.e., 75 turbines × 200 hours per year = 15,000 turbine hours). Mortality is often exhibited at one or several turbines (“problem groups”); therefore, it may be more appropriate to apply shutdowns to one or several problem groups (based on survey groups) for a longer period of time instead of applying shutdowns to the entire project. Shutdown times do not include operational shutdowns due to maintenance and other operator needs.

DIRECT MITIGATION

- Install avian flight-diverting poles in front of primary flight paths as shown by radar and mortality data. Flight-diverting poles are installed to divert migrating birds around these turbines as they approach the wind facility and should be placed so that they do not divert flight into other turbine groups. Flight-diverting poles shall be simple structures erected for the sole purpose of diverting avian species away from WTGs and shall not require the decommissioning of existing WTGs.
- As approved by the necessary entities, up to an additional 10 power poles (see Section 5.4.1, first bullet) determined to be unsafe will be retro-fitted and raptor proofed according to current APLIC guidelines (APLIC 2005).

5.3.3 Phase III Mitigation

TURBINE CURTAILMENT

- Implement cut-in speed curtailment for up to 1,080 hours per year (i.e., the equivalent of 90 days per year, 12 hours per day). Additionally, adjustments to seasonal and daily timing may be adjusted based on mortality, radar, and AnaBat (for bats only) data. Cut-in speed changes should not exceed 12 hours per day. A curtailment measure must be in place long enough to determine its effectiveness before an additional phased mitigation is implemented. However, no more than two phases of curtailment will be implemented in a single year. If thresholds are exceeded after implementing a second phase of curtailment in a single year, the TAC will meet and discuss other appropriate mitigation measures. Additional curtailment phases within the same year would require proponent approval. It should also be noted that the phased measures provide the maximum that can be allowed for an entire year, but based on data, the maximum may not be needed initially. The TAC may recommend using a portion of the available curtailment time to address a mortality event, and if thresholds are still exceeded in that year, they may increase that time to the maximum within the same phase.
- Implement shutdowns corresponding to highest activity periods based on mortality survey, radar, and AnaBat data (for bats only), for up to the equivalent of 22,500 turbine hours. Mortality is often exhibited at "problem groups;" therefore, it may be more appropriate to apply shutdowns to one or several problem groups for a longer period of time instead of applying shutdowns to the entire project. Additional shutdown phases in the same year are to be implemented similar to as described for cut-in speed phases. Shutdown times do not include operational shutdowns due to maintenance and other operator needs.
- Further cut-in speed curtailment hours may be utilized for an equivalent reduction (i.e., power generation loss is equivalent or less) in shutdown hours.

DIRECT MITIGATION

- If mortality occurs at one or several turbine groups, one of the turbine blades could be painted black in each group, in accordance with the color scheme suggested by Hodos (2003). This technique has had positive laboratory tests but requires further study. This measure must be approved by the BLM and Federal Aviation Administration prior to implementation.
- As approved by the necessary entities, up to an additional 10 power poles (see Section 5.4.1, first bullet) determined to be unsafe will be retro-fitted and raptor proofed according to current APLIC guidelines (APLIC 2005).

5.3.4 Phase IV Mitigation

TURBINE CURTAILMENT

- Implement cut-in speed curtailment hours for up to 1,080 hours per year (i.e., the equivalent of 90 days per year, 12 hours per day). Additionally, adjustments to seasonal and daily timing may be adjusted based on mortality, radar, and AnaBat (for bats only) data. Cut-in speed changes should not exceed 12 hours per day. A curtailment measure must be in place long enough to determine its effectiveness before an additional phased mitigation is implemented. However, no more than two phases of curtailment will be implemented in a single year. If thresholds are exceeded after implementing a second phase of curtailment in a single year, the TAC will meet and discuss other appropriate mitigation measures. Additional curtailment phases within the same year would require proponent approval. It should also be noted that the phased measures provide the maximum that can be allowed for an entire year, but based on data, the maximum may not be needed initially. The TAC may recommend using a portion of the available curtailment time to address a mortality event, and if thresholds are still exceeded in that year, they may increase that time to the maximum within the same phase.

- Implement shutdowns corresponding to highest activity periods based on mortality survey, radar, and AnaBat data, for up to the equivalent of 30,000 turbine hours. Mortality is often exhibited at "problem groups;" therefore, it may be more appropriate to apply shutdowns to one or several problem groups for a longer period of time instead of applying shutdowns to the entire project. Additional shutdown phases in the same year are to be implemented similar to as described for cut-in speed phases. Shutdown times do not include operational shutdowns due to maintenance and other operator needs.
- Further cut-in speed curtailment may be utilized for an equivalent reduction (i.e., power generation loss is equivalent or less) in shutdown hours.

DIRECT MITIGATION

- As approved by the necessary entities, up to an additional 10 power poles (see Section 5.4.1, first bullet) determined to be unsafe will be retro-fitted and raptor proofed according to current APLIC guidelines (APLIC 2005).

5.3.5 Phase V Mitigation

TURBINE CURTAILMENT

- Implement cut-in speed curtailment for up to 1,080 hours per year (i.e., the equivalent of 90 days per year, 12 hours per day). Additionally, adjustments to seasonal and daily timing may be adjusted based on mortality, radar, and AnaBat (for bats only) data. Cut-in speed changes should not exceed 12 hours per day. It should also be noted that the phased measures provide the maximum that can be allowed for an entire year, but based on data, the maximum may not be needed initially. The TAC may recommend using a portion of the available curtailment time to address a mortality event, and if thresholds are still exceeded in that year, they may increase that time to the maximum within the same phase.
- Implement shutdowns corresponding to highest activity periods based on mortality survey, radar, and AnaBat data, for up to the equivalent of 37,500 turbine hours. Mortality is often exhibited at "problem groups;" therefore, it may be more appropriate to apply shutdowns to one or several problem groups for a longer period of time instead of applying shutdowns to the entire project. Shutdown times do not include operational shutdowns due to maintenance and other operator needs.
- Further cut-in speed curtailment hours may be utilized for an equivalent reduction (i.e., power generation loss is equivalent or less) in shutdown hours.

DIRECT MITIGATION

- As approved by the necessary entities, up to an additional 10 power poles (see Section 5.4.1, first bullet) determined to be unsafe will be retro-fitted and raptor proofed according to current APLIC guidelines (APLIC 2005).

5.4 Species-Specific Mortality Thresholds and Mitigation

In addition to the overall mortality thresholds, species-specific thresholds for T/E and state-protected bat and avian species have been developed. These species are provided protection by the federal (ESA, MBTA, BGEPA) and state government (Nevada Revised Statutes 503.584–585), respectively, who regulate and enforce unlawful take. These thresholds do not permit take under those protections but have been developed to address the higher potential for population impacts to those species (Table 10) in order to ensure impacts are not substantial. Additionally, although not specifically called out, other species such as BLM special-status species may also receive species specific consideration by the TAC.

Table 10. Species-Specific Mortality Thresholds

Common Name	Scientific Name	Relative Abundance[1]	Impact Indicator	Status Factor	Mortality Threshold
Bat Species					
Brazilian free-tailed bat[2]	*Tadarida brasiliensis*	11.4	7	2	14
Pallid bat[2]	*Antrozous pallidus*	1.2	1	2	2
Townsend's big-eared bat[2]	*Corynorhinus townsendii*	0.4	1[4]	2	2
Spotted bat[3]	*Euderma maculatum*	0.0[3]	1[4]	2	2
Western mastiff bat[3]	*Eumops perotis*	0.0[3]	1[4]	2	2
Allen's big-eared bat[3]	*Idionycteris phyllotis*	0.0[3]	1[4]	2	2
Western red bat[2]	*Lasirurs blossevillii*	0.0[3]	1[4]	2	2
California leaf-nosed bat[3]	*Macrotus californicus*	0.0[3]	1[4]	2	2
Fringed myotis[3]	*Myotis thysanodes*	0.0[3]	1[4]	2	2
Avian Species					
Bald eagle[2]	*Haliaeetus leucocephalus*	0.02	1[4]	1	1
Brewer's sparrow[2]	*Spizella breweri*	1.42	1	3	3
Ferruginous hawk[2]	*Buteo regalis*	0.09	1[4]	2	2
Golden eagle[2]	*Aquila chrysaetos*	0.25	1	1	1
Greater sage-grouse[2]	*Centrocercus urophasianus*	0.00[5]	1[4]	2	2
Greater sandhill crane[2]	*Grus Canadensis*	0.13	1[4]	2	2
Juniper titmouse[2]	*Baeolophus ridgwayi*	0.09	1[4]	3	3
Loggerhead shrike[2]	*Lanius ludovicianus*	1.12	1	3	3
Long-billed curlew[2]	*Numenius minutes*	0.28	1	2	2
Long-eared owl[2]	*Asio otus*	0.00	1[4]	2	2
Northern harrier[2]	*Circus cyaneus*	0.63	1	2	2
Peregrine falcon	*Falco peregrinus*	0.00[6]	1[4]	2	2
Pinyon jay[2]	*Gymnorhinus cyanocephalus*	3.70	2	3	6
Prairie falcon[2]	*Falco mexicanus*	0.04	1[4]	2	2
Red-naped sapsucker[2]	*Sphyrapicus nuchalis*	0.02	1[4]	3	3
Sage sparrow[2]	*Amphispiza belli*	1.77	1	3	3
Swainson's hawk[2]	*Buteo swainsoni*	0.49	1	2	2
Vesper sparrow[2]	*Pooecetes gramineus*	0.30	1	3	3
Western burrowing owl[2]	*Athene cunicularia*	0.00[6]	1[4]	2	2
Willet[2]	*Tringa semipalmata*	0.06	1[4]	3	3

[1] Represented as percentage of detections.

[2] State-protected species.

[3] This species accounted for less than 0.1% of all data.

[4] A minimum impact indicator value of 1 is given to species with minimal observations.

[5] Greater sage-grouse are believed to occur in the project area but were never observed during surveys.

[6] Western burrowing owls were only observed incidentally, which means numbers were not recorded.

Currently, no T/E avian or bat species are identified in the project area. To determine species-specific mortality thresholds, the relative abundance of that species has been determined using pre-construction survey data. That number is then used as a percentage of the overall mortality thresholds (avian: 25 surveyed turbines × 2.70 = 68/year; bats: 25 surveyed turbines × 2.56 = 64/year) to determine the species indicator. The indicator is then multiplied by a species status factor (Table 11) to determine the species-specific mortality threshold. Species-specific mortality thresholds will not initially have searcher efficiency or scavenger rate correction factors applied because they correct for general observations but do not provide species-specific information. However, if it becomes possible after sufficient mortality data collection has occurred to develop species-specific searcher efficiency and/or scavenger rate correction factors, then these will be calculated and applied so that species-specific mortality thresholds can be modified to include searcher efficiency and/or scavenger rates.

Table 11. Species Status Factors

Status Ranking	Criteria	Multiplication Factor
High	Federally listed T/E species that are considered to be in the most danger of extinction and bald and golden eagles due to their current status with the USFWS under the BGEPA.	1
Moderate	State sensitive species exhibiting slow population growth (late maturity and low reproduction rates [fewer than 3 offspring/year on average]), leading to a reduced ability to recover from new sources of mortality (Stahl and Madan 2006).	2
Low	State sensitive species exhibiting increased population growth (early maturity and high reproduction rates [more than 3 offspring/year on average]) that are more able to recover from new sources of mortality (Stahl and Madan 2006).	3

Species-specific mitigation has been developed to address bald and golden eagles due to their status under the BGEPA and MBTA and the USFWS and BLM requirements for compliance with the Acts. Mitigation has not been proposed for other specific species because it is currently unknown whether or which species would exceed mortality thresholds. Therefore, if species-specific thresholds are exceeded, the TAC will determine what mitigation, if any, should be recommended for implementation, and the BLM Authorized Officer would approve the measure if determined appropriate. Mitigation may include development of a phased approach for the species. In some cases, mitigation may not yet be warranted, or very specific measures may be needed. Therefore, the TAC shall consider species impacted, timing of impacts, and other pertinent information collected during mortality surveys as part of their mitigation determination. For example, raptor mitigation may include retrofitting powerlines in other areas of Nevada to meet Avian Powerline Interaction Committee standards which would reduce overall population impacts. If mitigation is selected, the measure should achieve the goal of reducing mortality below thresholds, but not require a level of effort resulting in excess mitigation. Funding for these measures is separate from that described in Section 3.4. Additionally, at the end of each year the TAC will review current data, determine whether species-specific threshold numbers or multiplication factors need to be adjusted for subsequent surveys, and provide recommendations to the BLM Authorized Officer, as necessary.

5.4.1 Bald and Golden Eagle Mitigation

The following measures were developed to address potential eagle mortality associated with the SVWEF and will be implemented as initial mitigation measures. Bald eagles are a rare occurrence at the SVWEF and therefore, mitigation measures are primarily developed to address potential golden eagle issues.

- Based upon an initial survey of the power lines within the project area, it was found that a Mt Wheeler transformer pole was not currently retro-fitted and posed a high risk to raptors. Based upon the high probability that the additional 18 Mt Wheeler transformer poles within Spring

Valley are also not retro-fitted, an additional survey will be conducted to confirm the need for retro-fitting these structures. Those poles determined to be unsafe will subsequently be retro-fitted and raptor proofed according to current APLIC guidelines (APLIC 2005). An additional survey will be conducted on all of Mt. Wheelers distribution lines within Spring Valley. SVW will work in conjunction with Mt Wheeler to ensure all of their remaining distribution lines within Spring Valley are retro-fitted and raptor safe. Facilities will be constructed to APLIC standards to reduce the likelihood of collision and electrocution.

- Install anti-perch devices on transmission poles within 2 miles of the project area, as allowed by transmission operators. The SVWEF will notify the USFWS of any transmission operators that are unwilling to allow SVWEF to retrofit their lines. The USFWS will provide outreach to these operators to encourage them to allow the work.
- During the appropriate time of year, conduct nest searches for bald and golden eagles within a 10-mile radius around the project area using USFWS 2010 guidelines (Pagel et al. 2010) to develop a baseline dataset for golden eagle territories.
- Additional monitoring for nests identified during these searches that are active will be visited once each month (from a distance so as not to disturb) during the nesting season (approximately March 15 to July 30) to determine nest success. This will occur for the first three years post construction and every fifth year after that. If a golden eagle is found as a mortality during the nesting season, all golden eagle territories identified will be searched to determine if the mortality appears to be from a resident bird. Understanding the status of the bird may help the TAC determine appropriate mitigation measures.
- If golden eagle nests with young are discovered within 6 miles of the project area, all nestlings designated by the TAC will be equipped with satellite telemetry transmitters for continued study regarding use of the area, dispersal, and survivability. Permits for such research will be requested and obtained from the USFWS Migratory Bird Office and NDOW.
- Mortality surveys would be completed for the first three years. Upon approval from the TAC, the surveys may be adjusted to occur every five years thereafter based on mortality levels.
- A Wildlife Education Program would be implemented during the operations of the Spring Valley Wind Farm for contractors, project operations staff, and other staff who will be on-site on a regular basis. This training will enable them to identify wildlife species that may occur in the Project area, record observations of these species in a standardized format, and take appropriate steps when downed wildlife are encountered. The program will be prepared by a qualified biologist. The program would include a wildlife education component consisting of briefings for staff and others on-site; printed reference materials; and protocols for documenting and reporting downed wildlife.
- Other on-site direct mitigation measures may be recommended by the TAC based on collected data and current literature.

6.0 CONCLUSION

This document was written to provide guidance for all required wildlife mitigation and monitoring prior to, during, and after construction of the SVWEF. The measures described in this document are intended to help protect and reduce impacts to wildlife, as well as to monitor potential impacts to wildlife following implementation of the SVWEF. It is anticipated that this ABPP will adaptively manage the SVWEF based on findings following construction.

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APPENDIX A: MORTALITY TRACKING SPREADSHEETS

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BIWEEKLY MORTALITY SURVEY DATA FORM

Site Name: Spring Valley Wind Energy Facility

Date: [mo/day/year]

Searchers: [Enter names]

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	**Total Bats**	BAEA	FEHA	GOEA	SWHA	[Add species]	**Total LB**	BRSP	JUTI	LOSH	PIJA	[Add species]	**Total SB**
1																		
2																		
3																		
4																		
5																		
6																		
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22																		
23																		
24																		
25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

SEASONAL MORTALITY TRACKING BY TURBINE

Site Name: Spring Valley Wind Energy Facility

Season: Spring (March 16–May 15)

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	**Total Bats**	BAEA	FEHA	GOEA	SWHA	[Add species]	**Total LB**	BRSP	JUTI	LOSH	PIJA	[Add species]	**Total SB**
1																		
2																		
3																		
4																		
5																		
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22																		
23																		
24																		
25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

SEASONAL MORTALITY TRACKING BY TURBINE

Site Name: Spring Valley Wind Energy Facility

Season: Summer (May 16–August 15)

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	**Total Bats**	BAEA	FEHA	GOEA	SWHA	[Add species]	**Total LB**	BRSP	JUTI	LOSH	PIJA	[Add species]	**Total SB**
1																		
2																		
3																		
4																		
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24																		
25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

SEASONAL MORTALITY TRACKING BY TURBINE

Site Name: Spring Valley Wind Energy Facility

Season: Fall (August 16–October 31)

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	Total Bats	BAEA	FEHA	GOEA	SWHA	[Add species]	Total LB	BRSP	JUTI	LOSH	PIJA	[Add species]	Total SB
1																		
2																		
3																		
4																		
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25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

SEASONAL MORTALITY TRACKING BY TURBINE

Site Name: Spring Valley Wind Energy Facility

Season: Winter (November 1–March 15)

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	**Total Bats**	BAEA	FEHA	GOEA	SWHA	[Add species]	**Total LB**	BRSP	JUTI	LOSH	PIJA	[Add species]	**Total SB**
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

ANNUAL MORTALITY TRACKING BY TURBINE

Site Name: Spring Valley Wind Energy Facility

Season: [Enter start and end dates]

	# of Mortalities Observed																	
	BATS						LARGE BIRDS						SMALL BIRDS					
Turbine Group #	Tabra	Anpal	Cortow	Lablo	[Add species]	**Total Bats**	BAEA	FEHA	GOEA	SWHA	[Add species]	**Total LB**	BRSP	JUTI	LOSH	PIJA	[Add species]	**Total SB**
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
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19																		
20																		
21																		
22																		
23																		
24																		
25																		
Total Uncorrected																		
Searcher Efficiency Factor																		
Scavenger Removal Rate Factor																		
Total Corrected																		

Total Bats per WTG	
Total Birds (LB and SB) per WTG	

ANNUAL MORTALITY SUMMARY

Site Name: Spring Valley Wind Energy Facility

	Mortality per WTG																											
Species	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	[Survey Date]	TOTAL	Threshold/WTG	Exceeded (Y/N)?
Overall																													
Total Bats (Corrected)																												**64**	
Total Birds (Corrected)																												**68**	
Species Specific - Bats																													
Tadarida brasiliensis																												**14**	
Antrozous pallidus																												**2**	
Corynorhinus townsendii																												**2**	
Lasirurs blossevillii																												**2**	
Species Specific - Birds																													
Bald eagle																												**2**	
Brewer's sparrow																												**3**	
Ferruginous hawk																												**2**	
Golden eagle																												**2**	
Greater sage-grouse																												**2**	
Greater sandhill crane																												**2**	
Juniper titmouse																												**3**	
Loggerhead shrike																												**3**	
Long-billed curlew																												**2**	
Long-eared owl																												**2**	
Northern harrier																												**2**	
Pinyon jay																												**6**	
Prairie falcon																												**2**	
Red-naped sapsucker																												**3**	
Sage sparrow																												**3**	
Swainson's hawk																												**2**	
Vesper sparrow																												**3**	
Western burrowing owl																												**2**	
Willet																												**3**	

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APPENDIX G

Weed Risk Assessment

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RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

1. **Project Name: Spring Valley Wind, LLC, Wind Generating Facility**

2. **NEPA No: DOI-BLM-NV-L020-2010-007-EA**

3. **Date Risk Assessment was completed**: July 7, 2010

4. **Describe steps taken to complete Risk Assessment:**

Prior to conducting this noxious/invasive weed risk assessment, SWCA Environmental Consultants (SWCA) obtained the Ely District noxious weed inventory data from Bonnie Million of the Bureau of Land Management (BLM) Ely District Office (Figure 1). Additionally, SWCA biologists made casual observations of invasive weed species during other biological surveys within the project area. Noxious weed field surveys were not completed for this assessment.

5. **Project Description:**

Spring Valley Wind, LLC, is proposing the development of a 150-megawatt (MW) wind generating facility (WGF) along with associated roads, rights-of-way, and ancillary facilities within Spring Valley, which is located approximately 40 km (25 miles) southeast of Ely, Nevada. The project area is 7,820 acres and the WGF would be built entirely on BLM-managed lands. Of the total project area only 91 acres would be permanently removed from development of project facilities, while an additional 590 acres would be temporarily disturbed for the purpose of temporary laydown areas. These temporary laydown areas would be reclaimed following completion of the WGF.

Development of this project is motivated by growing electrical power needs within the State of Nevada and will help to satisfy the State of Nevada goal of achieving not less than 20% of electrical energy generation from renewable resources by 2015 (NRS 704.7821). Development of the WGF will include placement of up to 75 wind turbines, which have an anticipated life span of 30 years.

6. **Project Location:**

The project is located in White Pine County, Nevada, within Sections 25 and 36, Township 15 North, Range 66 East; Sections 30–32, Township 15 North, Range 67 East; Sections 1 and 12, Township 14 North, Range 66 East; and Sections 5, 6, and 7–9, Township 14 North, Range 67 East, found on the South Bastion Spring, Yellowwood Dry Lake, Hogum, and Cave Mountain Nevada, U.S. Geological Survey quadrangles. The project area is generally bounded on the west side by Nevada State Highway 893 and on the south and east sides by U.S. Highway 6\50

7. **Risk Assessment:**

The risk assessment is evaluated by two categorical factors. Factor 1 is determined by the current condition of noxious and invasive weed populations within and adjacent to the project site, including access roads. Factor 2 is independent from factor 1 and is determined by evaluating the consequences of noxious and invasive weed establishment within the project site.

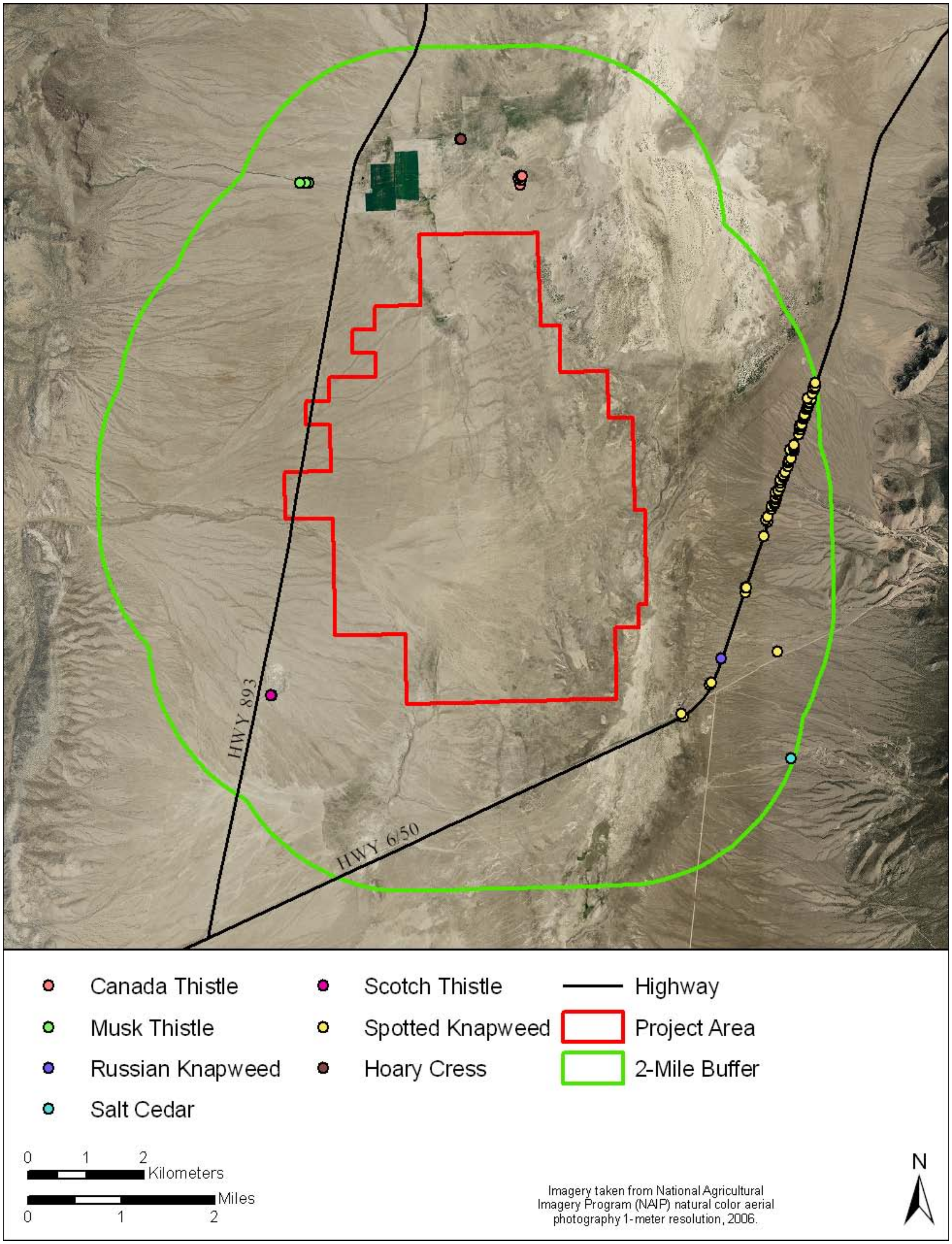

Figure 1. Recorded weed locations within 1 mile of the project area.

Factor 1 is determined to be Moderate (4–7) because of the current infestations of noxious and invasive plants species within and adjacent to the project area. These species and their general occurrence location are summarized below in Table 1. Analysis of noxious weed inventory data was limited to a 1-mile buffer around the project area.

Table 1. Noxious Plant Species within the Project Area and 1-mile Buffer

Scientific Name	Common Name	Rank	Present in Project Area
Acroptilon repens	Russian knapweed	Category B	
Bromus tectorum	Cheatgrass	Invasive	X
Carduus nutans	Musk thistle	Category B	
Centaurea stoebe ssp. micranthos	Spotted knapweed	Category A	
Cirsium arvense	Canada thistle	Category C	
Cirsium vulgare	Bull thistle	Invasive	
Halogeton glomeratus	Halogeton	Invasive	X
Salsola tragus	Russian thistle	Invasive	X

Factor 2 is determined to be High (9) because of the amount of acres being permanent and temporarily disturbed presents a high potential to spread existing weed populations, especially invasive species such as cheatgrass and halogeton. Also, the use of heavy equipment to construct and maintain the infrastructure for the project could transport weeds from other areas and introduce new weed species to the project area and surrounding landscape. An increase in cheatgrass could increase the fire frequency in native plant communities.

Risk Rating

The risk ratings for the project sites are determined by multiplying factors 1 and 2. The subsequent value determines the course of action required to mitigate noxious and invasive weeds resulting from project implementation.

8. Determination

The risk rating for this project is High. This level of risk rating indicates that preventative measures for noxious and invasive weeds are necessary. Preventative measures for this project are discussed below in the following section.

9. Preventative Measures

For this project, the risk rating is High. This indicates that the project must be modified to reduce the risk level through preventive management measures. These preventive management measures include:

1. Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of

weeds will be explained. It is also recommended that an annual refresher of this training be provided to affiliated personnel.

2. Prior to construction, a site-specific weed survey will occur. Monitoring will be conducted during and five years after reclamation reports will be provided to the BLM Ely District Office. If the presence and/or spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with Ely District Office personnel and will be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Submission of pesticide use proposals and pesticide application records will be required.

3. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground-disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet, tires, and the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning system (GPS) units or other mutually acceptable equipment and provided to the District Weed Coordinator or designated contact person.

4. To eliminate the introduction of noxious weed seeds, roots, or rhizomes, all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for reclamation or stabilization activities, feed, bedding will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely District Office.

5. Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g., using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)

6. Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approves by the BLM Authorized Officer prior to planting.

7. At the end of the project five consecutive years of monitoring are required with no establishments or spread of noxious weeds allowed on the site at the time of

reclamation release. Any noxious weeds that become established or spread will be controlled by the proponent.

Reviewed by: */s/Mindy Seal* 7/8/2010

Mindy Seal
Natural Resource Specialist

Date

APPENDIX H

Preliminary EA Comment Responses

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APPENDIX H

Draft Preliminary EA Comment Responses

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Comment Response Table Code Key

Table H.1. Resource Categories and Codes

Resource Category	Definition	Code Number	Definition
ACEC	**Area of Critical Environmental Concern**	1	General
		18	Hydrology
AQ	**Air Quality**	2	General
		59	Impact Assessment
BR	**Biological Resources**	3	General
		19	Bats
		20	Birds
		21	Sage Grouse
		22	Pygmy Rabbit
		23	Big Game
		24	Sensitive Plants
		25	Habitat
		26	Other Wildlife
		27	Weeds
		28	Reclamation
		29	Mitigation
		30	Impacts Assessment
		31	Special Status Species
CR	**Cultural Resources**	4	General
		32	Native American
		33	Historic and Prehistoric
		34	Mitigation
ECON	**Economics**	5	General
FIRE	**Fire Potential**	6	General
HUM	**Human Environment**	7	General
LR	**Lands and Realty**	8	General
MIN	**Mineral Resources**	9	General
NEPA	**NEPA**	10	General
		40	EIS
		41	Alternatives
		42	Cumulative Impacts
		43	Proposed Action
		44	Document Layout
		45	Review Timeline
		46	Impacts Assessment
		47	Purpose and Need
		48	Mitigation
		49	Other Sections
NO	**Noise**	11	General
POD	**Plan of Development**	12	General

Table H.1. Resource Categories and Codes (Continued)

Resource Category	Definition	Code Number	Definition
RN	**Range**	14	General
		57	Grazing
		58	Mitigation
REC	**Recreation**	13	General
		50	Surrounding Parks
		51	Recreational Use and Access
		52	Hunting
TRAN	**Transportation**	15	General
VR	**Visual Resources**	16	General
		35	Surrounding Parks
		36	Lighting
		37	Simulations
		38	Mitigation
		39	Cumulative Impacts
		60	Impact Assessment
WR	**Water Resources**	17	General
		53	Ground Water
		54	Surface Water
		55	Springs
		56	Cumulative Impacts

Table H.2. Commenter ID Code

ID	Commenter Type	First Name	Last Name	First Name	Last Name	Organization
1	Individual	Dennis	Morrison			None Listed
2	Individual	Kevin	Emmerch			None Listed
3	Individual	Robert	Benson	Sandra	Benson	None Listed
4	Individual	Brendan	Hughes			None Listed
5	Individual	Jared	Fuller			None Listed
6	Business	K	Harper			The Ely Times
7	Government	Laurie	Carson			White Pine County Board of County Commissioners
8	Organization	Kenneth	Heinbaugh			Steptoe Valley Energy Advocates
9	Individual	Jo Anne	Garrett			None Listed
10	Organization	Rose	Strickland			Sierra Club-Toiyabe Chapter
11	Individual	Abigail	Johnson			None Listed
12	Individual	Dennis	Morrison			None Listed
13	Individual	Ellen	Ross			None Listed
14	Organization	Kevin	Emmerich	Laura	Cunningham	Basin and Range Watch
15	Individual	Henry	Jingle			None Listed
16	Organization	Rob	Mrowka			Center for Biological Diversity

Table H.2. Commenter ID Code (Continued)

ID	Commenter Type	First Name	Last Name	First Name	Last Name	Organization
17	Organization	John	Tull			Nevada Wilderness Project
18	Government	Steven	Siegel			State of Nevada Department of Wildlife
19	Individual	Kendra	Appelman-Eastvedt			None Listed
20	Individual	Sheila	Bowers			None Listed
21	Business	Gary	Vesperman			Blue Energy Corporation
22	Individual	Carol	Hunt			None Listed
23	Individual	Robert	Benson			None Listed
24	Organization	Katie	Fite			Western Watersheds Project
25	Government	Paul	Johnson			White Pine County School District
26	Organization	Katie	Fite			Western Watersheds Project
27	Tribe	Rupert	Steele			Confederated Tribes of the Goshute Reservation
28	Government	Kimberly	Reinhart	Zane	Marshall	Southern Nevada Water Authority
29	Organization	Joseph	Johnson			Sierra Club-Toiyabe Chapter
30	Government	Tod	Williams	Andrew	Ferguson	United States Department of Interior, National Park Service-Great Basin National Park
31	Organization	Lynn	Davis			National Parks Conservation Association
32	Government	Robert	Williams	Kathleen	Erwin	United States Department of the Interior- Fish and Wildlife Service- Nevada Fish and Wildlife Office
33	Government	Reese	Tietje			State of Nevada Department of Administration-Clearinghouse
34	Tribe	Virginia	Sanchez			Duckwater Shoshone Tribe
35	Organization	Kevin	Emmerich			Basin and Range Watch

Table H.3. Resource Disposition

ID	Description
6	AA (Already Addressed)
7	NS (non substantive)
8	OOS (out of scope)
9	S-C (change in FEIS required)
10	S-NC (no change required)

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Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
3	4	ACEC	18	6	This project has the potential to affect the groundwater sources of an ACEC.	Based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC.
47	14	ACEC	18	6	How does the public get to know if each turbine will impact groundwater in the Swamp Cedar ACEC when analysis will be done after approval?	Analysis would not be conducted after approval; instead, site-specific geotechnical investigations would be conducted to finalize the turbine foundation designs and develop necessary Best Management Practices. Additionally, the intent of the site-specific investigations is to ensure that construction activities do not puncture and dewater the aquifer. They would not impact the hydrology of the Swamp Cedar ACEC.
48	14	ACEC	18	6	The project site is right next to a sensitive and unique wetland, and should be moved to an already disturbed area outside of the groundwater basin so as not to impact this wetland, Swamp Cedar ACEC.	Although the Swamp Cedar ACEC vegetation community is dependent on the existing hydrologic conditions, it is not considered a "wetland." Additionally, based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC.
45	14	ACEC	18	6	The project would be built next to the Swamp Cedars Area of Critical Environmental Concern. The unique Swamp Cedars Area of Critical Environmental Concern lies on a "perched water table," where seasonal wetlands and springs are common, and allowing a savanna of junipers to come down from high elevations.	Section 3.11.2 of the Preliminary EA discloses the location of the Swamp Cedar ACEC relative to the project area and the resources for which it has been designated, including the unique plant community which is dependent on the existing hydrologic conditions.
46	14	ACEC	18	6	We are very concerned that the construction of the project will disrupt the delicate hydrology of the ACEC causing localized cone of depression effects that would dry up parts of the ACEC. We do not believe it is wise for BLM to allow the project so close to this habitat.	Based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC.
7	14	ACEC	18	10	The EA states that further geotechnical investigations will be conducted at the site of the placement of each turbine. Please describe the potential impacts that geotechnical investigations would have on hydrology relating to cone of depression effects on the swamp Cedars Area of Critical Environmental Concern.	The site-specific geotechnical investigations are being conducted to finalize the turbine foundation designs and necessary Best Management Practices. The investigations would not impact the hydrology of the Swamp Cedar ACEC. The turbine foundations are projected to be approximately no deeper than 8 feet below ground surface. Based on the hydrology report (Kleinfelder 2010), the depth to groundwater is between 14.5 and 40.5 feet below ground level. Accordingly, excavation for turbine foundations should not encounter or affect the aquifer. There will be no cone of depression.
6	17	ACEC	1	9	Some of the issues that we believe were not adequately addressed include the location next to an ACEC that contains both sensitive plants and cultural resources.	Section 4.11.2.2 of the Preliminary EA describes the effects of the proposed action on the adjacent Swamp Cedar ACEC. Sections 4.6 and 4.7 of the Final EA have been revised to include a more detailed description of the effects of the proposed action and alternative on both cultural resources and Native American religious concerns.
2	26	ACEC	18	9	This action will also involve an investment of hundreds of millions if not billions of dollars in placing a series of very expensive turbines in the center of a unique Great Basin valley with severe aquifer and de-watering concerns. The waters have been targeted in the notorious and highly controversial SNWA aquifer mining scheme, referred to as the Las Vegas "water grab". The immediately adjacent Swamp Cedar ACEC is highly vulnerable to changes in ground water in supporting unique vegetation communities.	Based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC. Because the construction water will be leased from an existing agricultural user pursuant to a permit from the Nevada Division of Water Resources for a temporary change in the manner and place of use, the construction water use will displace a similar volume of agricultural use during the construction period, and accordingly, there will be no net increase in water diversion in the basin as a result of the SVWEF. Section 2.1.1.2.12 of the Final EA has been revised to clarify water use.
34	29	ACEC	18	6	How does the public get to know if each turbine will impact groundwater in the Swamp Cedar ACEC when analysis will be done after approval? This violates the public involvement central to NEPA.	Analysis will not be conducted after approval - site-specific geotechnical investigations would be conducted to finalize the turbine foundation designs and develop necessary Best Management Practices. Additionally, the intent of the site-specific investigations is to ensure that construction activities do not puncture and dewater the aquifer. They would not impact the hydrology of the Swamp Cedar ACEC.
7	29	ACEC	18	6	The EA stated that further geotechnical investigations will be conducted at the site of the placement of each turbine. Please describe the potential impacts that geotechnical investigations would have on hydrology relating to cone of depression effects on the Swamp Cedars Area of Critical Environmental Concern.	Analysis would not be conducted after approval; instead, site-specific geotechnical investigations would be conducted to finalize the turbine foundation designs and develop necessary Best Management Practices. Additionally, the intent of the site-specific investigations is to ensure that construction activities do not puncture and dewater the aquifer. The turbine foundations are projected to be approximately no deeper than 8 feet below ground surface. Based on the hydrology report (Kleinfelder 2010), the depth to groundwater is between 14.5 and 40.5 feet below ground level. Accordingly, excavation for turbine foundations should not encounter or affect aquifer. There will be no cone of depression. They would not impact the hydrology of the Swamp Cedar ACEC.
32	29	ACEC	18	6	The project would be built next to the Swamp Cedars Area of Critical Environmental Concern. The unique Swamp Cedars Area of Critical Environmental Concern lies on a "perched water table," where seasonal wetlands and springs are common, and allowing a savanna of junipers to come down from high elevations.	Section 3.11.2 of the Preliminary EA discloses the location of the Swamp Cedar ACEC relative to the project area and the resources for which it has been designated, including the unique plant community which is dependent on the existing hydrologic conditions. The project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC. Further, the hydrology study found that the water table is at least 14.5 feet down and the turbine footings would not be dug that deep; therefore, puncturing the water table would be highly unlikely.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
33	29	ACEC	18	6	We are very concerned that the construction of the project will disrupt the delicate hydrology of the ACEC causing localized cone of depression effects that would dry up parts of the ACEC. We do not believe it is wise for BLM to allow the project so close to this habitat.	Based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC.
35	29	ACEC	18	9	The project site is right next to a sensitive and unique wetland, and should be moved to an already disturbed area outside of the groundwater basin so as not to impact this wetland, Swamp Cedar ACEC.	Although the Swamp Cedar ACEC vegetation community is dependent on the existing hydrologic conditions, it is not considered a "wetland." Additionally, based on the Hydrology report *Results of Preliminary Hydrogeologic Review (Draft), Proposed Spring Valley Wind Farm* (Kleinfelder 2010) and as described in Sections 4.5.2.2.1 and 4.11.2.2.1 of the Preliminary EA, the project area is in a groundwater discharge area of Spring Valley and the proposed action would not result in changes to the existing hydrology that supports the vegetation present in the ACEC. As stated in the Section 3.5.2 of the EA, the distance to ground water is between 14.5 and 40.5 feet. Turbine footings would be approximately 8 feet deep and therefore would not breach the perched groundwater layer. A resource conservation measure has been added to Section 2.1.4.2 that states, "If the water perching layer is breached, the hole or foundation will be seal grouted to preserve the subsurface hydrology that feeds the local system."
3	34	ACEC	1	8	3.11.2 Special Designations: The ACEC should be as large as necessary to protect the resources (BLM 1988), this statement made, the BLM has not visited the Tribes to determine the size of the Swamp Cedar ACEC. When the Tribes put forth their recommendation to the size-the BLM should make every effort to modify the ACEC.	The BLM and the Tribes have recently met in the Swamp Cedar Area of Critical Environmental Concerns (ACEC) to discuss the proposed Traditional Cultural Property (TCP) that encompasses the Swamp Cedar ACEC. ACEC and TCP are two separate and independent designations for special areas. ACECs are designated by the BLM through the Land Use Planning Process. The Swamp Cedar ACEC was analyzed in the Ely RMP FEIS and designated by the Ely RMP Record of Decision (ROD) in 2007. The Tribes were cooperators with the BLM on the RMP/FEIS and ROD. TCPs are proposed by the Tribes and based on cultural significance. The proposed TCP is larger than the ACEC based on the boundaries requested by the Tribes. The Schell Field Office is seriously considering adjusting the ACEC boundaries on Public Land to match the proposed TCP boundaries on Public Land after the TCP has been finalized. This process will require changes to the RMP. Proposed TCPs are protected under Archaeological Resources Protection Act of 1979 as amended.
16	14	AQ	2	9	Scientific studies have revealed that desert ecosystems and minerals have the ability to store CO2 gases. Have Desert Researchers Discovered a Hidden Loop in the Carbon Cycle? How much CO2 storage capability would be replaced by development? If the goal is indeed to reduce greenhouse gases, is it wise to remove this much carbon storing living crust? Please provide a detailed analysis on the amount of GHG that would otherwise be offset by an intact arid ecosystem.	Under both alternatives, no more than 337 acres would be disturbed in the short term, and no more than 111 acres would be disturbed in the long term. 111 acres is a negligible amount of vegetation and soil crust relative to the entire 581,213 acre Spring Valley Watershed (0.02%). There is no current data to support that the loss of such a small amount of soil crust relative to available crust would create a measurable change in CO2 volumes in the atmosphere. The Final EA has been revised to include an analysis of the impacts to air quality and a disclosure of pollutants and greenhouse gas emissions.
15	14	AQ	59	9	The BLM fails to identify any direct evidence that the proposed project will offset greenhouse gas emissions and even admits the uncertainty. There is no analysis on the volume of greenhouse gas emissions that would occur from the thousands of vehicles required for the construction of this project. There is no analysis on how the removal of carbon storing soil crusts would add to CO2 volumes in the atmosphere. From the lack of information in BLM's analysis, we are actually worried that the proposed project will make an even more problematic situation concerning climate change.	The purpose and need for the project is not to offset greenhouse gas emissions. An analysis of air quality and greenhouse gas emissions has been included in the Final EA. There is no current data to support that the loss of such a small amount of soil crust relative to available crust would create a measurable change in CO2 volumes in the atmosphere.
17	14	AQ	59	9	A final EIS will need to provide a quantitative analysis of the proposed project's potential to offset greenhouse gases. This project is being advertised as "green energy", yet there is no proof that it will actually offset greenhouse gas emissions. From the amount of destruction that would occur to the natural ecosystem as well as the impacts to the local community, the BLM has failed to prove that this project can even accomplish what it has set out to do.	The purpose and need for the project is not to offset greenhouse gas emissions and the Preliminary EA does not present the proposed project as a "green energy" project, but as a renewable energy generation option. The Final EA has been revised to include an analysis of the impacts to air quality and greenhouse gas emissions.
5	20	AQ	2	9	Undertake a cradle-to-grave analysis of net GHG emissions from the manufacturing (think concrete and steel-the highest emitters of all), international transportation of parts, construction emissions, lost CO2 sequestration and very low offsets by this Industrial power project (offsets of natural gas, not coal, since Big Wind is intermittent), and you will find net increases in GHGs, not reductions. So, your entire "basis" for pushing these boondoggles down our throats doesn't even exist-it is a big greenwashed fraud.	Under both alternatives, no more than 337 acres would be disturbed in the short term, and no more than 111 acres would be disturbed in the long term. 111 acres is a negligible amount of vegetation and soil crust relative to the entire 581,213-acre Spring Valley Watershed (0.02%). There are no current data to support that the loss of such a small amount of soil crust relative to available crust would create a measurable change in CO2 volumes in the atmosphere. The Final EA has been revised to include an analysis of the impacts to air quality and a disclosure of pollutants and greenhouse gas emissions.
1	24	AQ	2	6	I did not get a photo of the worst of the blowing dust in Spring Valley. Disturbance from 28 miles of access roads will greatly exacerbate these effects.	Section 2.1.2.2 of the Preliminary EA states that "In addition to grading, the application of new gravel may be necessary to maintain road surfaces. Water would be used as needed for dust control." A dust abatement plan will be put together as part of the COM final plan.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
9	26	AQ	2	6	How will severe dust storms affect wind and other apparatus? We recently observed a severe dust event in Spring Valley. How will all the disturbance from construction of the facility increase dust? How will dust be increased by SNWA de-watering, aquifer drawdown and killing of phreatophyte and other vegetation as planned by SNWA to prevent plants from having a drop of water, all the potential disturbance and unstable and eroding soils here, further loss of stabilizing vegetation as a result of all this and any other wind farm disturbances, buried pipelines, and a host of other disturbances?	Dust would not have an affect on wind turbine generators or associated facilities. Best Management Practices to address impacts, including surface disturbances, are part of the proposed action and alternative and are described in Section 2.1.4 of the Preliminary EA. BMPs include the following: "In construction areas where ground disturbance is unavoidable, surface restoration would consist of recontouring and reseeding with a BLM-approved seed mix." Additionally, as described in Section 4.5.2.2.1 of the Preliminary EA, the maximum total annual water use associated with the proposed action would only occur during the construction phase and would amount to 0.44% of the total annual groundwater discharge in Spring Valley. A dust abatement plan will be part of the final COM plan.
84	26	AQ	2	6	How will the dust storms interfere with VESPER? Why isn't the project just shut down from late afternoon until morning? This seems reasonable.	Dust would not have an affect on the VESPER radar system. The Avian and Bat Protection Plan for the Spring Valley Wind Energy Facility (Appendix F of the Preliminary EA) includes different phases of turbine curtailment and the potential for Wind Turbine Generator shutdowns of up to 37,500 turbine hours.
12	29	AQ	2	6	The EA inadequately analyzes the project's potential to remove soil crusts, thus causing erosion that will result in increased dust from blowing winds. How would this be mitigated?	Best Management Practices to address impacts are included for the proposed action and alternative and are described in Section 2.1.4 of the Preliminary EA including "In construction areas where ground disturbance is unavoidable, surface restoration would consist of recontouring and reseeding with a BLM-approved seed mix." In addition, a Restoration Plan is provided in Appendix A and a dust abatement plan will be part of the final COM plan. Interim seeding and final seeding would also help mitigate dust and erosion as described in the EA.
2	4	BR	19	6	This project has the potential to affect millions of bats.	The potential for the project to impact bats is disclosed in Sections 4.2.2.7, 4.2.3.7, 4.3.2.6, and 4.3.3.6. The ABPP has been prepared to mitigate the impacts described.
6	4	BR	20	7	It could kill bald eagles.	Bald eagles are an uncommon to rare occurrence in the project as described in Section 3.3.5. Impacts to the species are disclosed in Sections 4.3.2.5 and 4.3.3.5 using the best available data and currently accepted methods. Further, the ABPP (Appendix F) details comprehensive mitigation measure to reduce impacts to avian species.
5	4	BR	21	6	It would also fragment and destroy habitat for the sage grouse.	Sage grouse habitat in the area is considered relatively low-quality that is surrounded by roads, transmission lines, and other disturbances. The closest active lek is 2 miles from the project area and sage grouse have not been recorded in the project area. Data from SNWA has been included in the EA to support the lack of sage grouse activity in the project area. The potential for the project to impact sage grouse is disclosed in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently accepted methods.
4	4	BR	22	6	It would also fragment and destroy habitat for the pygmy rabbit.	The selected action would avoid all current occupied and high-quality pygmy rabbit habitat. The impacts to pygmy rabbit are discussed in Sections 4.3.2.1 and 4.3.3.1 using the best available data and currently acceptable methods.
11	10	BR	19	10	The EA discloses the presence of hundreds of thousands of Mexican free-tail Bats which reside seasonally at the Rose Guano Cave in the South Spring Mountains, less than 4 miles from the proposed project site, and other bats, many of which are on watch lists as sensitive species, including over one million bats migrating through Spring Valley, seasonally. The BLM appears to make the decision in the EA and the Record of Decision not to avoid project impacts to either the resident or the migratory population of bats, but to instead rely on monitoring and mitigation for addressing future adverse impacts, i.e. mortality from collisions with turbines, in up to five phases through an "adaptive management" process. The EA, however, did not propose an alternative to siting the proposed project farther away from Rose Guano Cave or in areas which would avoid migratory routes for the bats.	The decision record has not been issued at this time. The BLM's selected alternative (the alternate development alternative) was designed to avoid high use areas such as water sources. The project was also moved south and west from its original location, farther from Rose Guano Cave. Other locations described in Sections 2.5.1 and 2.5.2 were considered and eliminated from detailed analysis. Mitigation is an acceptable method for addressing all remaining impacts. The current positioning of the project area was a consideration of where wind resources are tempered by the weight of other resource issues.
12	10	BR	19	10	A full EIS should more thoroughly analyze the impacts of the project on resident and migratory bats and provide alternatives which avoid as many impacts as possible to these Spring Valley wildlife resources	This EA is tiered to the BLM's Programmatic EIS for Wind Development and it both summarizes the impacts described in the Programmatic EIS as well as site-specific impacts as determined though two years of pre-construction surveys and Dr. Sherwin's radar and telemetry bat study and coordination with agencies and experts. The EA considers the proposed action, an action alternative, and the no action alternative in detail as well as two alternatives that were eliminated from detailed analysis which is within CEQ and BLM requirements for EAs.
6	10	BR	21	6	How were NDOW concerns with impacts on Sage Grouse addressed in the EA?	Sage grouse issues identified by NDOW in the initial Draft EA were addressed in Sections 3.3.4, 4.3.2.4, and 4.3.3.4. NDOW did not submit any comments or concerns specific to sage grouse for the most recent EA dated July 19, 2010.
5	10	BR	21	9	Because Greater Sage Grouse are imperiled in the sagebrush steppe, including Spring Valley, we are concerned that the environmental assessment of impacts and whatever EA requirements on proposed sage grouse management and mitigation (we were unable to find them), are inadequate to meet federal and state protection mandates and policies. Many efforts at the federal, state, and local levels to conserve Sage Grouse and its habitat in Nevada are underway, but the EA appears to dismiss both the concerns and the "solutions."	Section 2.1.4.3 provides resource conservation measures, including measures for sage-grouse. Additionally, Table 6.1-1 Section 5.9 Ecological Resources – Gallinaceous Birds (BLM 2005: 5-73 to 5-74) provides mitigation measures from the PEIS. In addition, as part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.

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Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
10	10	BR	21	9	A full EIS should do much more thorough work in analyzing potential impacts of the proposed project to Greater Sage Grouse and their habitats in Spring Valley and develop alternatives which avoid the most serious impacts, including moving the project site, and adequate mitigation for unavoidable adverse impacts.	The EA provides a detailed analysis of impacts to sage grouse and includes an alternative (the BLM's selected alternative) that moves turbines farther from leks, where the most serious impacts could occur. The area provides low-quality sage grouse habitat and birds were not observed in the area during general use bird surveys. Additional analysis using survey data provided by SNWA has also been added. Lastly, as part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
3	10	BR	21	9	We searched for information on the Greater Sage Grouse, a candidate species which the USFWS just ruled is fully warranted for listing under the Endangered Species Act, but precluded currently. Very little information is in the EA or the PEIS excerpts in the EA. Serious concerns were raised by the Nevada Department of Wildlife and others about potential impacts on Spring Valley Sage Grouse populations and their habitat in the scoping phase. The EA does not have a section in which the BLM responds to public concerns such as these, but an EIS would do this.	Gallinaceous Birds, Section 3.3.4 of the EA describes the affected environmental for greater sage-grouse. Additional information regarding local movement patterns based on SNWA-provided telemetry data has been added to this section. Detailed impacts to this species are described in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently accepted methods. NDOW did not submit any comments or concerns specific to sage grouse for the most recent EA dated July 19, 2010.
7	10	BR	21	10	How did the BLM comply with the June 30, 2004, greater Sage Grouse Conservation Plan for Nevada (http://www.ndow.org/wild/conservation/sg/plan/SGPlan063004.pdf) developed by the Nevada Governor's Sage Grouse Conservation Team, in which the BLM participates?	The Greater Sage Grouse Conservation Plan was utilized for development of the analysis and mitigation; however, it is not a regulatory document requiring specific compliance actions. The BLM analyzed impacts to greater sage-grouse and determined the appropriate measures to address those impacts, as described in the EA.
9	10	BR	21	10	How did BLM comply with IM# 2010-071 (http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2010/im2009-071.html) regarding Sage Grouse management considerations for energy development proposals on public lands?	That IM states, "Screen new right-of-way applications to identify whether the wind or solar energy development or site testing and project area includes priority habitat. If so, alert the applicant as early as possible that the application may be denied or that terms and conditions may be imposed on the right-of-way grant to protect priority habitat as supported by NEPA analysis." This project was applied for prior to the IM being issued so it is not considered a new ROW application. However, the project was reviewed early in the process and the area contains low-quality habitat and is not priority habitat.
8	10	BR	21	10	How did the BLM follow the Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and their Habitats also developed by the SG Conservation team to provide guidelines when proposed energy development impact Sage Grouse and its habitats as this one does in Spring Valley?	The project is proposed in an area of low-quality sage grouse habitat and turbines have been proposed at least 2 miles from known active leks.
30	14	BR	19	6	The Draft Avian and Bat Mitigation and Adaptive Management Plan states: "During this study, turbine cut-in speeds will be altered from sunset to 4 hours after sunset for a 62-day period (248 hours) during the highest use period of August 1 through September 31." There are 12 other species of bats that could potentially be impacted by this project from May to the beginning of August. An adaptive management plan should be created for the additional species at risk as well.	The cut-in speed study from August 1 to September 30 is a starting point for mitigation correlating with the highest use period documented in pre-construction bat and radar surveys. The ABPP provides for additional cut-in speed changes and shut-downs at any time of the year in a phased approach to address impacts to both bats and birds.
31	14	BR	19	6	We have interviewed two biologists who have participated in mortality surveys for wind energy project. It is extremely difficult to train people to find carcasses of dead bats due to the size of the animal and the camouflage color of the animals. Most biologists tend to feel that this king of monitoring is not effective.	Mortality surveys can be difficult, depending on many factors. Searcher efficiency trials will be performed for each searcher during each season and mortality numbers will be adjusted using current scientific methods and statistics. Numbers will also be adjusted based on scavenger studies.
27	14	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan in no way convinces us that bat mortality can be avoided. It is frivolous for the BLM to consider approving a Right of Way for a project that is so close to the Rose Guano Cave .	The Avian and Bat Protection Plan was developed to address the potential issues to both birds and bats. Professionals/experts in wind/wildlife interactions, such as Dr. Thomas Kunz, an internationally renowned bat researcher, and local agencies were involved to ensure that all necessary measures were utilized and were realistic.
26	14	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan fails to document four species that would occur in the region. These species are: California myotis (Myotis californicus), Fringed myotis (Myotis thysanodes), Western Pipistrell (Pipistrellus hesperus), and Hoary Bat (Lasiurus cinereus). The hoary bat is mentioned in the EA, but the EA neglects to mention that the Hoary bat is a BLM Species of Concern. An EIS will need to provide a complete list of bat species that would occur in the area. In April, 2010, BLM employees informed us that this new mitigation and adaptive management plan "would resolve issues associated with bats." We believe this was a premature statement.	The plan lists bats identified during two years of acoustic and capture surveys in the project area. Hoary bat is included in plan. Hoary bat is not a BLM species of concern. The Avian and Bat Protection Plan was developed to address the potential issues to both birds and bats. Professionals/experts in wind/wildlife interactions, such as Dr. Thomas Kunz, and local agencies were involved to ensure that all necessary measures were utilized and were realistic.

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29	14	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan states: "A curtailment study will be completed during the first year to determine the most effective cut-in speed following methods based on those developed by Arnett et al (2009) in which they evaluated the effectiveness of increasing cut-in speeds from an initial 4.0 m per second (m/s) to experimental speeds of 5.0 and 6.5 m/s. These increased cut-in speeds were effective in reducing bat mortality by 53%-87%, with minimal loss of revenue for the WEF (Arnett et al. 2009). No Brazilian free-tailed bats were evaluated in this study; therefore, testing is needed to determine the effectiveness of increased cut-in speed." Because "No Brazilian free-tailed bats were evaluated in the study", you have very little information as to what the future outcome will be.	Given that cut-in speed changes have been successful for other bat species, it is highly likely they will be effective for this species as well. However, the ABPP is an adaptive management plan in which increasing cut-in speeds is just one tool that may be used. The plan was written to evaluate impacts and provide tools and techniques to address those impacts as they occur.
32	14	BR	19	10	The EA states: "The project proponent will provide $10,000 per year for three years to fund wind/wildlife interaction studies. Research will be recommended by the TAC, approved by the BLM Authorized Officer, and funded by the proponent. Additionally, the BLM or other participating agency may elect to contribute funding. In that event, the proponent would provide funding to the BLM, and the BLM would issue a Request for Proposals for the study." A $30,000 research fund will not bring back the Rose Guano Cave population of Mexican free-tailed bats if the wind farm causes a giant population crash. This is not an acceptable mitigation plan.	The $10,000 per year is intended to add to research to help provide a net overall benefit. However, it is not intended to mitigate all impacts to bats or birds. There are many initial mitigation measures as well as adaptive measures that have been developed and described in the ABPP to ensure mortality levels stay below significant levels.
24	14	BR	19	10	The project is approximately 4 miles from Rose Guano Bat Cave. The Programmatic EIS for wind states that caves used by bats should be avoided. In place of this measure, a project-specific Mitigation Measure has been provided in Section 6.4.2 and in the ABPP. The mitigation measure, to avoid known bat caves and migration corridors, is completely being ignored. There appears to be no mitigation.	The project is proposed 4 miles from Rose Guano Bat Cave and was not placed along the ridgelines closer to the cave. The referenced measure to avoid bat caves and migratory areas is disclosed in the EA and it is addressed by presenting a comprehensive bat protection plan (Appendix F) to address the proximity to the cave and migration area.
37	14	BR	20	10	Bald and Golden Eagles are common on the project site. Spring Valley is known as a wintering region for bald eagles. How will death of bald eagles be waived under the Bald and Golden Eagle Protection Act? A Section 7 take based on research could not be justified in this case. How many Take permits would be issued for bald eagles? Additionally, the presence of WTGs would increase the risk of nest abandonment in and near the project area. How is this being allowed under the Bald and Golden Eagle Protection Act?	Based on two years of pre-construction data and as disclosed in Section 3.3.5 of the EA, golden eagles were only observed 13 times and bald eagles were only observed once during surveys, with several other incidental observations outside of survey periods. No bald or golden eagle nests or nesting habitat has been recorded within or adjacent to the project area. If avian mortality occurs, enforcement of the MBTA and the Eagle Act are the responsibility of the USFWS. No permits for take of eagles are currently proposed. The ABPP outlines measures to reduce risk to avian species. Additionally, IM No. NV-2010-063, Guidance for the Development of Project-specific Avian and Bat Protection Plans for Renewable Energy Facilities, precludes the issuance of a Notice to Proceed until the USFWS's letter of concurrence for the ABPP is received for the project.
38	14	BR	20	10	As of January 2008 San Gorgonio wind farm near Palm Springs, California consists of 3,218 turbines. Raptors and water birds are killed here, but a study by McCrary (1986) evidenced that passerines were also being killed in numbers: "an overall estimate of as many as 6,800 birds killed per year, most of them nocturnal passerine migrants." www.iberica2000.org/documents/EOLICA/6800_bird_fatalities.doc.	The San Gorgonio Wind Farm is an old facility using old technology and closely spaced turbines, with 3,218 turbines providing 615 MW. Spring Valley would contain 75 turbines generating 149 MW; more than 10 times fewer turbines to generate similar power production. It also occurs in a very different area ecologically. Therefore, these facilities cannot be accurately compared. Potential impacts to all birds, including passerines, are described in the EA in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 using the best available data and currently accepted methods.
36	14	BR	20	10	It is our view that approval of this project would be a violation Executive Order 13186, the Migratory Bird Treaty Act. We do not believe that the BLM nor the applicant has proven that their project will not remove a substantial amount of avian wildlife from the region. Large raptors are the birds that suffer the highest mortality. Please review the following references: Please review the following video documenting a fatal collision with a large raptor and a wind turbine: http://www.wind-watch.org/video-vulture.php. The following article details the concerns of avian mortality from wind energy: http://seattletimes.nwsource.com/html/localnews/2012048835_windbirds07m.html.	The MBTA does not allow take of migratory birds. Approval and construction of the project is not in violation of that act. If avian mortality occurs, enforcement of the MBTA is the responsibility of the USFWS. Large birds actually make up a small percentage of the overall avian mortality across all wind farms, with several projects contributing an disproportionate amount of the raptor fatalities. In this case, a comprehensive ABPP (Appendix F) has been prepared to address potential mortality.
28	14	BR	20	10	It is frivolous for the BLM to consider approving a Right of Way for a project that is in a region that has such a robust population of different species of raptors.	The studies, impacts analysis, and development of mitigation required before the BLM can approve a right-of-way have been completed and are disclosed in the EA.
40	14	BR	21	6	The project will disturb sage grouse habitat. Sage grouse need large undisturbed areas of sagebrush, not cut by roads or fences, to nest and feed in. The impacts of industrial wind farms in sage grouse habitat will involve further fragmentation of the large patches of pristine sagebrush that harbor these birds. There is about 3,643 acres of sage grouse habitat within the project site. The major threat to Greater Sage-Grouse is the continued degradation of sagebrush habitats across the West. Agriculture has completely eliminated millions of hectares of native shrub-steppe habitat dominated by sagebrush, while additional millions of hectares of shrub-steppe have been stripped of their sagebrush vegetation. Overgrazing and urban development also contribute to the degradation of shrub-steppe habitat.	As described in the EA, the habitat in this area is of low quality and is already severely disturbed and surrounded by transmission lines and roads. The impact of removal of this habitat is fully described in the EA and appropriate mitigation is included in Chapter 6. Compensatory mitigation has been included in Section 6.4.

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41	14	BR	21	9	From the Programmatic Wind EIS: "Avoid, when possible, siting energy developments in breeding habitats. Potential breeding habitat occurs in the project area at low frequencies; however, the project is 2 miles from the closest lek and individuals likely use habitat west of SR 893 and the nearby overhead transmission line, thereby avoiding physical barriers. This is not mitigation, nor avoidance. Off-site mitigation should be considered, such as retiring a grazing allotment in Sage grouse habitat. Fragmentation will greatly increase, and is not mitigated." This has not been followed.	As part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
42	14	BR	22	6	Biologists mapped two burrows of pygmy rabbit (Brachylagus idahoensis) in the northern part (SWCA 2009). These small herbivores require tall dense sagebrush stands to hide from predatory hawks and eagles. At least 3 individuals were seen in 3 separate habitat patches in the project site. About 89 acres of good habitat for this rabbit, and 61 acres of occupied habitat with active burrows were found on the project area. The EA states that it hoped that the Pygmy rabbits will move away, "to avoid mortality associated with daily operations such as crushing by vehicles" Because pygmy rabbits are restricted to sagebrush habitats with deep soils, they have always been rare and patchily distributed across their range. Biologists agree that the main threats to pygmy rabbits across their range are habitats loss and fragmentation caused by conversion of sagebrush rangeland to agriculture, development, including oil and gas production, and wildlife frequency in some areas. If the Proposed Action is selected, relocation of pygmy rabbits by live trapping prior to construction should be considered in consultation with the USFWS and NDOW to avoid direct mortality. This is unacceptable, as the public does not have a chance to review any Pygmy rabbit relocation plan after project approval. How does trapping impact the rabbit? Please reference past trapping studies and give mortality numbers. How will rabbits be prevented from	That mitigation measure is in included in Section 6.4.
43	14	BR	23	6	The wind farm we believe will result in impacts to resident elk, deer, and pronghorn antelope, by noise impacts, habitat fragmentation, and increased human presence. The project will disrupt connectivity for wintering elk and pronghorn antelope. Turbines would be bisected by roads, concrete, electric cables, and other disturbances. Wildlife in general would be blocked by the proposed project.	The project area will not be blocked off and wildlife in general will be allowed to move freely through the project area. All impacts to big game, including the mentioned species, are described in Sections 4.2.2.3 and 4.2.3.3 using the best available data and currently accepted methods.
44	14	BR	24	10	No surveys for rare plants were undertaken on the site, only a few casual observations. Parish's phacelia (Phacelia parishii) has the potential to be found on the site, as records of it are found 250 feet from the project boundary. It is found on clay and alkaline soils by the playas and springs. Shadescale spring parsley (Cymopterus basalticus) is state ranked as "critically imperiled" Broad-pod freckled milkvetch (astragalus lentiginosus v. latus) is state ranked as "imperiled due to rarity or other demonstrable factors."	Data from NNHP shows Parish phacelia over 4 miles from the current project area. Mitigation for this species, which includes pre-construction surveys, is included in Section 6.4. Two populations of *Astragalus lentiginosus* v. *latus* occur approximately 2.5 and 7.0 miles from the project area; however, this species does not have habitat within the project area.
4	14	BR	25	6	The EA is suggesting that the overall footprint of the project would be less than significant because of the figure of "448 acres of disturbance". This statement is misleading from an ecological perspective. New roads, electric lines, substations, underground electrical collection systems, etc. will all be obstructions to wildlife habitat and connectivity in this region.	The quantification of disturbance relative to available habitat is only one component of the analysis. The EA describes the impacts of new roads, electric lines, substations, etc. for all resources under their respective sections in Chapter 4, both from a direct loss of habitat, as well as indirect impacts.
8	14	BR	26	6	An EIS should also examine the impacts geo-testing would have on soils and burrowing animals. How many decibels? Would burrowing animals be deafened?	The BLM's Wind PEIS that this EA is tiered to analyzes those issues. Geo-testing is part of the proposed action and is therefore considered in the analysis for the EA. This EA considers burrowing animals and the impacts from noise in Sections 4.2.2.1, 4.2.2.2, 4.2.3.1, and 4.2.3.2 using best available data and currently acceptable methods.
25	14	BR	29	10	The Avian and Bat Mitigation and Adaptive Management Plan is only in Draft Form. Where is the final document? The several unresolved issues in the document indicate that BLM is negligent in completing these studies.	The final ABPP is included in this final EA. All required studies have been completed.
35	14	BR	29	10	All of the mitigation phases are "after the fact". You have not convinced us that any of these mitigation phases will be adequate enough to prevent the mortality.	There are both pre-construction and post-construction measures listed in Chapters 2 and 6 of the EA and the ABPP. Measures included are based on current methods with data that support their success. For example, cut-in speed changes have been shown to reduce mortality between 53% and 87%.
39	14	BR	29	10	The avian and bat mitigation plan does not address the mortality that will probably happen, and defers mitigation to future studies. This is unacceptable. The Spring Valley Wind Project EA is not following the recommendations of the PEIS.	The ABPP directly addresses mortality by measuring what occurs and implementing the appropriate mitigation. It also includes initial mitigation, including cut-in speed changes which have been proven to reduce mortality between 53% and 87%.
33	14	BR	30	6	The EA states: "Carcass removal trails will be completed seasonally as described above in Section 6.2. Different seasonal rates for carcass removal are necessary to address changes in the scavenging throughout the season, as well as over time, as scavengers adapt to a novel food source. Carcasses will be placed as described for searcher efficiency trials. Carcasses will be checked at 1, 2, 3, 4, 5, 6, 7 ,14, 21, and 28 days following placement, or until they are all removed. Separate carcass removal rates will be determined for bats, small birds (passerines), and large birds (raptors). Carcasses used for removal trials will be handled with disposable nitrile gloves or an inverted plastic bag to avoid leaving a scent on the carcasses and interfering with the scavenger removal trial (Arnett et al. 2009)." This still is in the trial phase. More studies should be conducted before the project is constructed, not after. This data should be included in an EIS.	These trials are a necessary part of post-construction monitoring described in the ABPP in order to estimate the actual mortality occurring, not to predict potential mortality. Data from carcass removal trials are not necessary to support additional analysis in the EA.

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34	14	BR	30	6	The Mortality Threshold fails to explain the reasons that the numbers listed are acceptable thresholds for mortality of species. A final EIS will need to justify these numbers from an ecological perspective.	Section 7.3 of the ABPP provides the explanation for species-specific mortality thresholds: "To determine species specific mortality thresholds, the relative abundance of that species has been determined using preconstruction survey data. That number is then used as a percentage of the overall mortality thresholds to determine the species indicator. The indicator is then multiplied by a species status factor to determine the species specific mortality threshold. The ABPP goes on to state that these numbers may be changed based on post construction monitoring data."
1	15	BR	29	6	I wish to make the following mitigation suggestions: 1) If constructed, create a summer monitoring of bat deaths and near impacts. 2) Make it a condition of the Operation License, that excessive bat deaths will require restriction to the summer operations of the worst wind turbine to reduce the impact. If a problem develops, Wind Turbines should not be operated from 30 minutes before sunset to an appropriate morning hour when the bats have returned to the Rose Cave.	Mitigation measures such as this are detailed in the ABPP (Appendix F) which is part of the selected action.
35	16	BR	19	6	The PEIS provided discussion and guidance regarding impacts to bats and ways to avoid, minimize and mitigate them. It states that migrating bats, such as the Mexican free-tailed bat, are at most risk of turbine collision, and that, "with proper design and siting of wind projects (e.g., turbine management and design and land management), bat mortality can be greatly reduced and population-level effects avoided." It also recommends as part of this approach that, "turbines should not be located near known bat hibernation, breeding, and maternity/nursing colonies, in migration corridors, or in flight paths between colonies and feeding areas. The design criteria and mitigation measures in the EA seemingly ignore this advise. The Avian and Bat Protection Plan in Appendix F proposes to avoid bat mortality through the use of high-tech radars and their real time connection to computers controlling wind turbine operations. Mortality surveys would be conducted the first three years of operation and every fifth year after that. Based on the average mortality of all turbines, or an absolute figure for any individual turbine, various reactive measures would be taken, including diurnal or seasonal changes to turbine operation, or outright shut downs of varying lengths in worst-case situations. While these measures are an improvement over what was proposed in the last EA, their effectiveness is still speculative, and should be implemented with caution and intense	The monitoring program developed for this project meets the needs to develop the necessary scientific data for the TAC and BLM to make necessary management decisions. Additionally, the ABPP has been written to be adaptive to the data collected to ensure that monitoring and associated mitigation are effective over the long term. A 24/7 operations center will carefully monitor the data collected from the radar and adapt as required to reduce impacts to birds and bats.
14	16	BR	19	6	A large and significant migratory roosting cave, that shelters over a million Brazilian free-tailed bats lies immediately adjacent to the project area and is another significant and unique feature.	Rose Guano Bat Cave is addressed in the EA in Sections 3.11.2, 4.11.2.2, and 4.11.3.2, as well as in the bat sections of the EA and the ABPP which outlines extensive mitigation measures to reduce impacts to bats.
34	16	BR	19	10	Based on figure 3 in the SWCA report, turbine locations Alt 8, 9, and 10, and 58, 59, 73, and 74 are located near water or places having an elevated level of bat activity as measured by monitoring stations CF-2076 and CF-2079. While the BLM selected alternative does provide for placing turbines at least 1/2 mile from open water, no rationale or science is provided to support that this degree of separation is adequate for limiting and mitigating bat mortality, despite making the statement that, "Bat activity was generally much greater in survey locations near sources of water".	The 1/2 mile buffer is a common buffer distance used by wildlife and land management agencies to avoid impacts. For example, the Colorado Division of Wildlife has issued a list of avoidance buffer distances for raptor nests that range from 0.25 to 0.05 mile (CDOW 2008). Further, different buffer sizes are applied varying on the type of impacts and the wildlife species involved. The 1/2 mile tower placement buffer from open water was considered appropriate for bats.
36	16	BR	19	10	In light of the presence of the Rose Guano cave and the magnitude of the risk identified through preconstruction surveys, it is incumbent on the BLM to further analyze and disclose the impacts to bat species and to re-evaluate project siting and design. It is unclear what role, if any, NDOW has played in the above. NDOW should be consulted and its recommendations must receive the utmost consideration as part of an EIS process.	The EA provides detailed, site-specific analysis as well as a summary of the impacts disclosed in the Programmatic EIS for Wind Energy Development. This project has been intensively evaluated for siting and environmental impacts for several years, including close coordination with NDOW, USFWS, and other professionals/experts such as Dr. Thomas Kunz, Dr. Michael O'Farrell, and Dr. Steven Carothers.
29	16	BR	21	6	Another study on impacts to sage grouse from coal-bed natural gas development in Montana and Wyoming concluded that any development within .25 miles of a lek posed a severe threat to the lek's persistence, and may result in impacts over much larger areas. It further found that timing restrictions on construction and drilling during the breeding season do not prevent the impacts of associated infrastructure, such as avoidance, collisions, and predation during other times of the year that may be crucial for population persistence. Based on modeling conducted in this study, the authors estimated that development within 2 miles of a lek would reduce the average probability of lek persistence from 87% to 5%.	The BLM's selected alternative includes a 2-mile lek avoidance buffer.
27	16	BR	21	6	The PEIS is cited in this EA as stating that impacts from a wind project such as this proposal would include increased predation and interference with behavioral activities such as foraging, nesting and lek activities. The EA then states that the suggested management practices for protecting the sage grouse would be implemented along with mitigation measures found in Section 2.1.4 and Chapter 6 of the EA. However, when the proposed "design criteria" are compared to the best management practices of the PEIS, the proposal falls far short of providing the needed protections for the grouse called for in the PEIS and FWS guidelines.	The BMPs from the PEIS are described in Table 6.1-1 and are included as measures in this EA.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
18	16	BR	21	7	The Center is in receipt of two letters from the NDOW to the Nevada BLM expressing strong concerns that their recommendations for the wording of Management Action SS-40 were ignored or disregarded in the final wording. In a June 24 letter, NDOW stated that as written, SS-40, "will not adequately protect sage-grouse habitat to the extent necessary to maintain sage-grouse distribution and abundance"; this letter went on to question the BLM's compliance with its internal direction and policies concerning sensitive species. In a follow-up letter, NDOW stated that they are, "disheartened by Ms. Thomas's letter of response which quickly dismisses scientific study in favor of the decisional flexibility for your agency". This same letter reiterated, "There is a strong need to provide protection for dwindling populations of sage-grouse. It is out opinion that the 1/4 mile buffer zone (that may protect the lek site but not nesting, brood-rearing or winter habitat) which the Ely District is employing is inadequate to provide ample protection from energy facilities, transmission lines or mines that would degrade available habitat.	This comment is in regard to the BLM's Approved Resource Management Plan and letters received on that document and is out of scope for this project and associated EA.
22	16	BR	21	9	Sage grouse, as the name implies, is closely allied and dependent on various stages of sage brush development for their life stages and survival. Grouse are found in different stages of sagebrush development depending upon the season and the needs of the grouse during that time. Despite the well-known importance of this habitat to sage grouse and for at least 50 years and the welfare of the grouse mirrors this trend. The proposal would destroy or degrade about 3,643 acres of habitat. Further, additional off-site impacts could reduce sage grouse use on approximately 38,289 acres due to behavioral interferences.	These impacts are disclosed in the EA and mitigations are included to address impacts as necessary. Additionally, as part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
23	16	BR	21	9	The proposed action alternative produces impacts within 4 miles of at least 4 leks - Cleve Creek, Bastian Creek, Osceola, and Big Negro Creek, South, all within the distance required by the grouse to complete its yearly cycle of activities. Impacts to sage grouse related to energy development and transmission include lek abandonment, reduce nesting area fidelity and reproductive success, and abandonment of previously used winter habitat.	These impacts are disclosed in the EA and mitigations are included to address impacts as necessary. Additionally, as part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
33	16	BR	21	9	None of the action alternatives adequately avoid, minimize or mitigate the impacts to sage grouse, and before issuing a final decision, the BLM must correct these deficiencies.	The Alternative Development Alternative includes a 2-mile avoidance buffer for sage grouse leks and mitigation is described in Chapter 6. Additionally, as part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
28	16	BR	21	10	Connelly et al. recommended that for non-migratory grouse occupying habitats that are disturbed uniformly and are generally well distributed around the lek, that a 2 mile no disturbance area would be adequate based on the present science. For non-migratory grouse occupying not uniformly distributed sagebrush habitats, a 3.1 mile non-disturbance buffer is in order. They also made note that migratory birds can move further than 11 miles between leks and nesting habitat, and that breeding habitats within 11 miles of a lek should be identified and protected.	Current literature is inconsistent and inconclusive on the exact buffer for sage grouse and wind farms. However, a 2-mile buffer is the current buffer recommended by NDOW (Personal communication from Kenneth Mayer, NDOW, to Ron Wenker, BLM, on September 1, 2009) and is considered appropriate for this project.
12	16	BR	21	10	Although currently there are no species listed under the Endangered Species Act at least two species, the greater sage grouse was found to be "warranted but precluded" for protections under the ESA in March of this year. The sage grouse utilize the project area for courtship, breeding, and rearing of their young as well as for winter habitat.	Sage grouse are described in Section 3.3.4 and potential impacts are described in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently accepted methods.
30	16	BR	21	10	Draft recommendations on energy and infrastructure development from the Nevada Governor's Sage Grouse Conservation Team, dated July 2009, state that sage grouse habitat categories 1 and 2 (leks, brood rearing and winter habitats) are irreplaceable and critical to the long term persistence of the grouse and that no wind or geothermal development by developed, under any circumstances in these habitats. It further states that where habitat categories have not been determined, wind turbines or geothermal facilities should not be sited within 3 miles of the nearest lek; and that transmission lines should not be sited within 3 miles of the nearest active lek, and that ground level structures such as roads, should not be sited within .5 miles of the nearest lek site.	Current literature is inconsistent and inconclusive on the exact buffer for sage grouse and wind farms. However, a 2-mile buffer is the current buffer recommended by NDOW and is considered appropriate for this project.
24	16	BR	21	10	Since there is a lack of experiential and research data associated specifically for power lines and renewable energy developments and sage grouse, to gain a sense of the "best management practice", one must look to programmatic recommendations and the existing data for similar developments.	Analysis and recommendations from the Programmatic EIS for wind development and current literature were used to prepare the analysis section for sage grouse in the EA.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
43	16	BR	22	6	The proponent's study of the project area has found conclusive evidence that pygmy rabbits utilize this site. Up to 179 acres of potential habitat would be degraded or destroyed by the proposed action or selected alternative development alternative. Harm to the rabbit would include direct destruction, modification and fragmentation of its habitat, increased risk to predation due to reduction and fragmentation of cover, and increase mortality from vehicle traffic.	Those impacts as well as others are described in the EA in Sections 4.3.2.1 and 4.3.3.1 using the best available data and currently accepted methods.
13	16	BR	22	6	The pygmy rabbit, is currently being review for inclusion under the ESA. Pygmy rabbits, extreme habitat specialists, occupy the site, making the area significant and important.	Potential impacts to pygmy rabbits are described in Sections 4.3.2.1 and 4.3.3.1 using the best available data, and currently accepted methods. Additionally, pygmy rabbit surveys were conducted within the project area following accepted NDOW protocols.
44	16	BR	22	10	With respect to impacts on pygmy rabbits, the EA states, "even with restoration activities, the loss of occupied and high-quality habitat and potential habitat could lead to local population decreases because pygmy rabbits require specific habitat characteristics that limit available areas to colonize. Regional population levels are not expected to be affected because of the small amount of habitat loss relative to the Spring Valley watershed." The BLM, through its selection of the "alternate development alternative" did avoid the destruction of known occupied and some of the high quality rabbit habitat. However, the Center still requests that the BLM step back from this EA and as part of a more inclusive EIS process, engage state biologists and pygmy rabbit experts in analyzing and disclosing the true impacts and their magnitude on the rabbit, and further, to identify the appropriate measures that would avoid, minimize or mitigate these impacts.	There has been extensive coordination with the USFWS and NDOW for this project and their concerns regarding this species have been addressed. The analysis and mitigation presented in the EA are based on input from those agencies as well as the public and BLM biologists.
16	16	BR	23	10	The site borders crucial pronghorn antelope winter range, and big horn sheep inhabiting the mountain ranges immediately to the east and west of the project drop into the project site area during the winter.	A description of pronghorn in the area is provided in Section 3.2.3 and impacts to the species are described in Sections 4.2.2.3 and 4.2.3.3 using the best available data and currently accepted methods. Based on available data and known big horn habitat characteristics, the project area does not contain big horn habitat.
42	16	BR	24	6	With regards to special status plant species, the EA only addresses Parish phacelia, finding that it was not observed within the project area but is found nearby. There are two other species, that while not BLM special status species, are none-the-less rare and imperiled and recognized by the natural heritage program as being so. Shadescale spring parsley (Cymopterus basalticus) is state ranked as "critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors." Broad-pod freckled milkvetch (Astragalus lentiginosus v. latus) is state ranked as "imperiled due to rarity or other demonstrable factors". According to heritage records and mapping both plants are adjacent to or near the project area, and suitable habitat exists within the project area. Before approving this project, the BLM must conduct a survey to identify the presence or absence of these plants, and ensure that adverse impacts by the proposed wind project to these species are appropriately avoided, minimized or mitigated.	Habitat for Astragalus *lentiginosus* v. *latu* s includes steep to moderate slopes, which do not occur in the project area. Similarly, habitat for *cymopterus basalticus* includes bare basaltic rocks and barren clays, which also do not occur in the project area.
15	16	BR	24	10	At least three plant species ranked by the Nevada Heritage program as critically imperiled due to extreme rarity or imminent threats are documented to have been found within two miles of the project site and have potential to be found within the site.	Based on available data, Parish phacelia is the only Nevada Heritage Program listed plant with potential habitat in the project area. Several other plants listed by the NNHP were recorded several miles away, but do not have habitat within the project area.
46	16	BR	28	6	The EA envisions a network of up to 27.8 miles of access roads, taking up 95 acres of currently undisturbed land, for the operation and maintenance of the proposed wind facility. Road disturbances may be up to 68 feet wide during the construction phase, and the EA states that they would be reduced to 28 feet wide, including ditches, after construction is completed. The Center has several concerns regarding this travel network. There is no discussion about how the temporary disturbance area will be reclaimed, including how invasive plants will be managed in sage grouse rearing habitat, and how raptor prey species will be discouraged from becoming established.	A habitat restoration plan is included in the EA in Appendix A which provides guidelines for reclaiming temporary disturbance and managing weeds. Raptor mitigation, including measure to discourage use, is included in the ABPP in Appendix F.
41	16	BR	29	6	The BLM must reinitiate a scientifically and statistically based raptor study and utilize the results to redefine where the project is sited and how it is designed. The BLM also must add design and mitigation measures to reduce the presence of raptor prey species within the wind turbine field. The increased length of mortality monitoring suggested for bats will also benefit the management of raptor mortality.	A two-year study for birds, including raptors, following accepted protocols and recommendations from groups such as Hawk Watch International were used and the proposed action and alternative were developed based on findings. Design and mitigation measures for raptors are included in the ABPP.

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31	16	BR	29	6	Based on the cited literature and agency direction and other literature cited in them, it is apparent that the proposed mitigation measures for sage grouse in the EA are inadequate from both a spatial and temporal perspective, particularly given the magnitude of the risk that the sage grouse will be listed under the ESA. Particularly lacking is any attempt by the BLM or proponent to analyze and disclose the impacts of the project on the sage grouse from a landscape perspective. According to NDOW habitat maps, the entire project areas is in sage grouse wintering and rearing habitat and much is in nesting habitat. This immediately raises concerns given the above cited section of the PEIS and the FWS 2003 interim guidelines on wind and sage grouse. The analysis emphasis of distance from the single lek at Bastian Creek seems to have created a blind spot for the BLM in its analysis of project impacts on sage grouse. Also lacking was a discussion of how off-road vehicles would be restricted. Further, while the EA addresses invasive plant management, it envisioned the use of herbicides, which is counter to the guidelines in the PEIS.	The impacts to sage grouse from a landscape perspective are disclosed in the EA by describing the amount of available habitat and leks throughout the Spring Valley watershed and quantify impacts relative to that area. As an example, see Section 4.3.2.4.2 under Interference with Behavioral Activities. OHV use on BLM land is determined through the BLM RMP and is currently limited to designated roads and trails in Spring Valley.
26	16	BR	29	6	In 2005, the BLM issued a programmatic EIS for wind energy development in the west. This document contained a summarization of the best practices to protect Gallinaceous birds such as sage grouse during wind development planning and implementation. The measures, generic by nature included: control of invasive species; use of anti-perching raptor deterrents; restriction of OHV activity; avoidance of placing facilities in or next to sensitive habitats such as leks and wintering habitat; management of noise to prevent grouse disturbance; and, using a landscape approach to managing development impacts on sage grouse, such as identifying and avoiding daily and seasonal movement and migration routes, minimizing fragmentation and disturbance, restoration of habitat and compensatory habitat restoration for impacted sagebrush habitat.	These measures are listed and adopted as shown in Table 6.1-1.
37	16	BR	29	10	The Center offers the following suggestions: conduct a landscape analysis to properly site this development given bat, sage grouse and other species concerns. Wind energy efficiency should be compromised, if need be, to attend to species concerns; eliminate turbines near attractant feature, as determined by bat specialists and the peer-reviewed science; and, mortality surveys should be conducted annually for at least the first five years of operation.	A landscape analysis is not required as part of NEAP; however, an assessment of alternatives was completed and included in the EA. Avoidance of attractant features was determined by specialists and through available literature. The monitoring for this project is based around current protocols and has been developed through coordination with USFWS, NDOW, and other wildlife professionals/experts.
25	16	BR	29	10	In 2003, the FWS developed interim guidelines for avoiding and minimizing impacts to wildlife from wind turbines. In these guidelines, the FWS offer the following recommendations for locating "wind turbines and associated structures" within wind resource areas selected for development of wind energy facilities: Avoid fragmenting large, contiguous areas of habitat for area-sensitive species such as sage grouse; place developments on previously disturbed lands and away from areas of intact and healthy native habitats; avoid placing turbines within 5 miles of known leks; minimize roads, fences, and other infrastructure; avoid structures and designs that attract raptors; and, where feasible, place electric power lines underground.	These guidelines have been followed, as possible, and the USFWS has been coordinated with to address relevant issues. Many of these guidelines have been updated in more recent documents. For example, the current draft FAC guidelines that the USFWS are in the process of adopting do not recommend a set buffer from known leks. Further, these 2003 guidelines have been followed, as possible, and the USFWS has been coordinated with to address any issues.
32	16	BR	29	10	The Avian and Bat Protection Plan includes a monitoring plan with thresholds with regard to direct mortality of sage grouse from wind farm operations. It does not address in any way monitoring to detect indirect impacts to the grouse such as behavioral changes such as lek and winter range abandonment or reduced nesting and fledging success. A thorough protection plan that envisions utilizing an adaptive management approach must address these indirect effects as well as the effects of direct mortality.	Based on current data, impacts to sage grouse are expected to be minimal as described in the EA; therefore, monitoring is not required for the species beyond standard monitoring that NDOW does for grouse throughout the area.
39	16	BR	30	6	The PEIS offers recommendations for increasing the compatibility of wind development and raptor needs, and includes the following measures: Raptor use of the project area should be evaluated, and the project should be designed to minimize or mitigate the potential for raptor strikes. Scientifically rigorous raptor surveys should be conducted; the amount and extent of baseline data required should be determined on a project-specific basis; Turbine arrays should be configured to minimize avian mortality (e.g., orient rows of turbines parallel to known bird movements); Avoid the establishment of habitat that attracts high densities of prey animals used by raptors; and, Tubular supports rather than lattice supports should be used, with no external ladders and platforms. The EA see-ming in violates the first point, Since good survey data is lacking, it is unclear whether or not the second point is being followed, although through observation of maps showing the project and topographic orientation it appears to violate it. The implementation of measures in the third point to reduce prey populations are not addressed, while it does appear the fourth point is being implemented.	The Preliminary EA does not violate the first point. Raptor migration surveys were conducted for three days during each month of the two migration seasons over two years (9 days each season and 36 days total). Survey effort totaled over 200 hours of surveys for migrating raptors. In determining the intensity with which exploratory surveys such as these should be conducted, conversations with HawkWatch personnel resulted in the determination that a full long-term raptor migration site protocol was unnecessary to determine whether or not the project area falls within a major migratory corridor. In addition, the proposed action and alternative have been designed to reduce the amount of edge habitat that would attract higher densities of prey. Use of existing roads, and existing gravel sources was done when possible and the collection system and new access roads are located adjacent to one another to reduce the number of linear corridors needed. While turbine configuration was considered for environmental impacts, turbines also had to be configured to utilize the available wind resource to create a commercially viable project.

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38	16	BR	30	6	The proponent's contractor surveyed for raptors once a month (8 hours) in March, April and May for spring migration and September, October, and November for the fall migration, and each of three observation points were surveyed once during each period. The contractor attempts to given this abbreviated survey protocol a sense of legitimacy by saying that Hawkwatch International survey procedures and forms were used. HWI's survey procedures call for six days a week of observations over a period of weeks during the active migration period. No science is provided to justify the legitimacy or validity of surveying only once a month for eight hours, nor are there any estimates of the statistical precision or error given.	Raptor migration surveys were conducted for three days during each month of the two migration seasons over two years (9 days each season and 36 days total). Survey effort totaled over 200 hours of surveys for migrating raptors. In determining the intensity with which exploratory surveys such as these should be conducted, conversations with HawkWatch personnel resulted in the determination that a full long-term raptor migration site protocol was unnecessary to determine whether or not the project area falls within a major migratory corridor.
40	16	BR	30	9	There is an inconsistency between the EA and its Avian and Bat Protection Plan. The EA states that, "… each year prior to the onset of the migratory bird breeding season (March 15 to July 30), and once each month during the season, raptor nest surveys would be completed to identify active nests within .5 mile of a turbine." On the other hand, the Avian and Bat Protection Plan states, "Nest surveys will be conducted prior to the nesting season during the first three years and every fifth year after that. Aerial or ground based raptor nest surveys will be conducted within the entire project area and a 1-mile buffer for raptors [BLM 2007]..." This 1-mile buffer is consistent with FWS guidelines for ferruginous hawks and the Ely Resource Management Plan.	The Final EA has been revised to be consistent with the ABPP.
7	17	BR	19	10	Some of the issues that we believe were not adequately addressed include the proposed project is adjacent to a natural cave resting site and within a migratory flyway and foraging area for the Brazilian free-tailed bat (Tadarida brasiliensis). The most detailed study of the large cave estimates that at least one million of these bats move through the area annually. Currently, the radar proposed to manage the wind turbines during bat activity is an untested method and needs to be explored through peer-review research before it can be claimed a fail-safe form of mitigation.	The radar is one method that can be utilized to help reduce impacts to bats. Cut-in speed changes and shut-downs can also be initiated in conjunction with analysis of mortality data for annual, seasonal, and daily patterns and both have been proposed as mitigation measures in the ABPP.
8	17	BR	21	9	Sage-grouse (Centorcercus urophasianus) leks are situated on three sides of the proposed project area. No studies were completed to determine if the proposed project area is used as annual foraging for these birds. As the BLM is aware, this species has recently been determined as warranted but precluded for listing under the Endangered Species Act by the U.S. Fish and Wildlife Service. Development impacts on this species simply cannot be overlooked.	As stated in the EA, only one lek 2 miles to the northwest of a turbine is active. The area provides low-quality sage grouse habitat and birds were not observed in the area during general use bird surveys. However, additional information regarding local movement patterns based on SNWA-provided telemetry data has been added to the EA.
2	17	BR	29	6	We believe that additional development of BLM lands should not occur unless significant wildlife habitat mitigation or conservation on public lands occurs in tandem.	Wildlife mitigation is described in Chapters 2 and 6, as well as multiple appendices for the EA such as the ABPP in Appendix F. Additionally, compensatory mitigation has been added to Section 6.4.
12	18	BR	19	10	In Appendix F, on page 7, in Section 5.2 Turbine Curtailment, the document states that turbine curtailment in response to the migratory population of Tadarida brasiliensis at Rose Cave "will occur during the highest use periods of August 1 through September 30, from sunset to 4 hours after sunset". NDOW has documented substantial activity by T. brasiliensis at Rose Cave well into October, and it is known that in many years the bats arrive during late July. The actual use of the cave can be as long as approximately 12 weeks each fall. The turbine curtailment should occur where and when the mortality data demonstrates wildlife mortality. The TAC should provide input for the proper times and locations for curtailment to occur based upon data recovered during operation. It will be important that a sufficient robust monitoring program be developed to allow the TAC to make the best operational decisions to protect wildlife at the SVWEF.	It is understood that *T. brasiliensis* activity occurs outside of the August 1 though September 30 window. This is the initial mitigation measure for curtailment and is tied to a study to determine the most effective speeds at which to curtail. Therefore, timing must be set. Additionally, the idea is to address the period of highest use as an initial mitigation measure. If that does not address impacts, phased mitigation provides additional amounts of curtailment and also states that the timing can be altered based on data.
3	18	BR	19	10	The U.S. Fish and Wildlife Service (and an interdisciplinary committee which included the wind industry) has recently updated their guidance document for the siting of wind energy projects. The siting criteria for avoiding major bat hibernacula and migration routes in those guidelines, was not followed in the siting of the Spring Valley Project.	The project is proposed 4 miles from Rose Guano Bat Cave and was not placed along the ridgelines closer to the cave. The referenced measure to avoid bat hibernacula and migratory routes is disclosed in the EA and it is addressed by presenting a comprehensive bat protection plan (Appendix F) to address the proximity to the cave and migration area.
7	18	BR	20	6	On page 47 in Section 3.2.6, Birds of Prey, the document states that "because [no western screech owls] were observed or heard during nearly two years of preconstruction surveys and habitat in Spring Valley is limited (Floyd et al. 2007), it is assumed that this species rarely entered the project area." This species is active at night and no nocturnal wildlife surveys were conducted to determine the presence of this species. Nocturnal surveys are one of the best tools available to determine the absence or presence of a species, like the flammulated and western screech owl. The lack of data to support assumptions in the EA can lead to inaccurate analyses.	The statement commented on is from an old version of the EA and is not in the most recent EA for which these comments were submitted. In Section 3.2.6, the EA reads, "NDOW has said that western screech-owls (Megascops kennicottii) have been detected from the nearby Swamp Cedar ACEC, and they have been added to Table 3.2-3 as well. However, because occurrence data cannot be found for this species in the area and habitat in Spring Valley is limited (Floyd et al. 2007), it is assumed that this species rarely enters the project area. " This is the best available data for a species that does not require specific surveys. Pre-construction survey data has not been able to be linked to estimating post-construction impacts, therefore, nocturnal survey data would provide little benefit for determining impacts beyond confirming presence/absence of those species. In general, impacts to passerines, raptors, etc. are consistent for both diurnal and nocturnal species.

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Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
17	18	BR	20	9	In Appendix F, on page 12, in Section 6.5, Nest Surveys, the document states that "birds will be banded, as possible, in order to track use on-site and determine whether there is mortality to resident birds" and "The methods for the final banding program will be determined prior to construction in consultation with the appropriate agencies." NDOW does not see the value for this study or for bird banding. Seasonality and species identified would be sufficient to determine the status of any mortality. The need for mortality mitigation should not be nosed upon a factor of species residency.	This section has been removed from the ABPP.
6	18	BR	20	9	On page 47, in Section 3.2.5, Songbirds, are discussed in regards to the issue of nocturnally migrating birds. The document states "it is known that many species of passerines migrate nocturnally. Nocturnally migrating passerines usually fly at great heights, sometimes as high as 925 m (3,037 feet) (Able 1970). Therefore, the assumption is that nocturnally migrating passerines would not be at a high risk of collision with WTG blades in Spring Valley." NDOW has provided comments on several occasions pointing out the lack of specific surveys for bird species that migrate at night. Bird mortalities have been documented at night at other WGF in the region. The BLM has a responsibility to ensure that adequate on-site survey work was conducted to assess this potential impact. Conclusions regarding the significance of impacts must be based upon an evaluation of data. New technology is in place to provide this data. Video and surveillance technology used to identify nocturnally migrant birds has evolved in the last few decades and is being used on other proposed wind energy projects. Finally, the height at which birds fly at night is controlled in part by site-specific factors. Data from this proposed project site or similar sites should have been utilized in the analysis in the EA to support the assumptions expressed. Insufficient data was secured within the rotor sweep area to draw conclusions.	Based on conversations with NDOW following this comment, a measure has been added to the initial mitigation measures in the ABPP to complete nocturnal surveys using both radar that will be on site as well as other means such as video technology to complete nocturnal surveys. That data will be used to help inform adaptive mitigation measures if avian mortality is found that correlates to survey data. Substantial data regarding avian use in the RSA was collected and detailed in the pre-construction avian and bat study report by SWCA. Species-specific data on passerine use in the RSA is shown in Table 4.2-3.
14	18	BR	29	6	In Appendix F, on page 7, in Section 5.2 Turbine Curtailment, NDOW requests that the chosen cut-in speed for the WGF be updated and refined using data collected from continued mortality searches as reviewed and recommended by the TAC.	Data collected from mortality searches will not provide data on cut-in speeds. However, collected data will be used to refine cut-in speed timing as described in the text for that phased mitigation measure.
10	18	BR	29	6	On page 155, in Section 6.4, Project-Specific Mitigation Measures, in the first bullet the document states "If the Proposed Action is selected, relocation of pygmy rabbits by live trapping prior to construction should be considered in consultation with the USFWS and NDOW to avoid direct mortality." Trapping and relocation of pygmy rabbits has not been proven to be effective in protecting the rabbits. There should be a discussion with NDOW and the USFWS prior to implementation of this mitigation measure.	This measure would only be implemented with the consultation and support the USFWS and NDOW.
8	18	BR	29	6	On page 74, in Section 4.2.1.2, Operation and Maintenance, Table 4.2-2 states that "low magnitude but long term [effects from wind turbine collision] for many [bird and bat] species" are anticipated. The environmental assessment goes on to state "population effects [are] possible for other species". NDOW is concerned there could be a high magnitude of mortality on the Brazilian free-tailed bat (Tadarida brasiliensis) from wind turbine collision given the numbers of this species of bats using the project area as a migration corridor each Fall. The magnitude of bat use in this area is supported by research NDOW has conducted in cooperation with the BLM and Bat Conservation International (Sherwin 2009). The BLM's response directly to NDOW's comment was "Potential impacts are addressed by implementation of the Avian and Bat Protection Plan (ABPP) which contains curtailment and shut-down steps." The ABPP includes five phases of mitigation using several different types of mitigation. Should bat mortalities continue despite the measures taken as described in the ABPP, NDOW recommends as a final phase, that the Technical Advisory Committee (TAC) develop measures for offsite mitigation to offset the impacts to T. brasilinesis. This mitigation could take the form of habitat protection, habitat enhancement or habitat creation.	Off-site mitigation is already built into the five current phases. The ABPP also contains the following statement at the end of Section 7.1 which could include additional off-site mitigation: "If thresholds are still exceeded following implementation of all mitigation measures for all phases, the BLM would meet with the TAC, other appropriate land and wildlife management agency representatives, and the proponent to determine necessary management strategies."
15	18	BR	29	9	In Appendix F, on page 8, in Section 5.2 Turbine Curtailment, the document states that "If neither of these turbine cut-in treatments have a statistically significant impact, the default cut-in speed for the turbines in the SVWEF would be set at 3.0 m/s." The BLM response to an earlier comment on this issue was "A study very similar to Arnett et al. 2010 has been designed which will scientifically determine the best cut-in speed to reduce mortality while maintaining the most possible energy output. This method uses current statistics and measureable data. If neither of these turbine cut-in treatments have a statistically significant impact, the default cut-in speed for the turbines in the SVWEF would be set at 3.0 m/s or a cut-in speed recommended by the TAC based on current science." NDOW requests that this comment be included in the text of this section.	The following has been added, "If neither of these turbine cut-in treatments have a statistically significant impact, the default cut-in speed for the turbines in the SVWEF would be set at 3.0 m/s or a cut-in speed recommended by the TAC based on current science specific to the project area may be used. If there is not enough statistical power from the study to determine an effective cut-in speed, the study will be redone with a larger dataset or a cut-in speed will be determined based on current relevant data."
13	18	BR	29	9	In Appendix F, on page 7, in Section 5.2 Turbine Curtailment, NDOW requests that curtailment be determined through a review by the TAC in order to assist in designing a project that will help maintain mortality below thresholds. The BLM's response to this earlier comment was "if the original curtailment plan/timing does not keep mortality under thresholds then additional amounts of curtailment are available in the phased mitigation. As part of those phased mitigation measures, adjustments to seasonal and daily timing may be made based upon mortality, radar, and AnaBat (for bats only) data." We request this comment be included in the text of this section.	Has been added to the last paragraph of Section 5.2.

Table H.4. Comment Response Table

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11	18	BR	29	10	In Appendix F, on page 6, in Section 5.1 Radar Monitoring and Mitigation Measures, there is a discussion of the use of the DeTect Merlin and Vesper radar systems and their role in turbine curtailment and shut down. This radar system is in use at the other WGF to allow for evaluation of the potential effectiveness of this mitigation measure. In addition, peer review by other specialists in this field would be important to verify that the technology is effective.	Peer reviewed data on the current facilities with this technology are not currently available. Dr. Thomas Kunz, Dr. Mike O'Farrell ,and Dr. Steven Carothers have reviewed the plan and agree that the methods are appropriate and viable.
4	18	BR	29	10	Pattern Energy has offered up an operational mitigation plan for birds and bats that is unique, forward-thinking and encouraging. It incorporates technology that if proven to be effective, may become a standard for addressing mortality impacts resulting from wind energy development. We enthusiastically support the use of adaptive management in working towards minimizing wildlife mortality, the use of a Technical Advisory Committee to identify and solve project issues and the suggestion of mitigation that could be applied when anticipated mortality is exceeded.	Thank you for your support of the ABPP.
18	18	BR	30	6	In Appendix F, on page 14, in Section 7.2, Overall Avian and Bat Mortality Thresholds. Regarding mortality estimates from the eleven existing wind farms that Table 4 references, the document states "It is assumed that these thresholds are a starting point". BLM's response to our previously provided comment was "The mortality thresholds are not considered acceptable levels of mortality, but as indicators to start mitigation based on the best current information. It is also expected that the TAC will recommend adjustments in the mortality thresholds as new data becomes available." NDOW requests this comment be included in the text of this section.	Section 7.2 states, "It is assumed that these thresholds are a starting point and that the TAC will review them annually to determine their effectiveness as well as to determine whether new data are available that would help refine them; it is also assumed that the TAC will provide recommendations to the BLM Authorized Officer regarding whether or not to increase or decrease them." No additional text has been added.
16	18	BR	30	6	In Appendix F, on page 9, in Section 6.1, Mortality Surveys, the document indicates mortality surveys would occur every other week for one-third of the operating turbines. NDOW requests that the text state more clearly that mortality searches will be conducted at an appropriate subset of the total turbines and at a frequency recommended by the TAC. NDOW also requests that the document clarify that searcher bias factor be considered and incorporated into the data analysis. BLM's response to our previously provided comment was "The number of turbines surveyed and the survey frequency are considered appropriate with current studies being conducted in the U.S." Additionally, the document states, "Additionally, survey intervals may need to be adjusted based on the findings for these studies in order to ensure precise correction factors, as described by Husoo (2008). Searcher efficiency factors as well as scavenger rate will be utilized, consistent with current method, and as described in section 6.2, 6.2, and 6.3." We request that this comment be included in the text of this section.	The information in this response is included in the ABPP in the last paragraph of Section 6.1.
5	18	BR	30	10	On pages 44-48, in Sections 3.2.4 through 3.2.7, the document discusses bird distribution for the project area. The document relies on observations of wildlife species from the proponent's preconstruction surveys to predict which species might be impacted. On several previous occasions, NDOW has raised concerns regarding the adequacy of many of the proponent's wildlife surveys to aid in the identification of anticipated impacts. The BLM's response directly to NDOW was "Surveys for birds in the project area were done using typical methods for evaluating wind farms, such as general use bird point counts, breeding bird point counts, and raptor nest surveys. Quantitative, preconstruction surveys such as these are likely to yield more robust estimates of species occurrence and abundance than state atlas data. Additionally, protocols were developed in coordination with BLM, Hawkwatch International, and the Great Basin Bird Observatory." This response does not resolve our concern regarding the adequacy of surveys to evaluate the impacts of the proposed project; in fact, we continue to maintain that the statement comparing preconstruction surveys to state atlas data as "Likely...more robust" is erroneous, particularly in consideration of the level of effort invested in the preconstruction surveys for this project site. A comprehensive preconstruction wildlife survey policy needs to be developed to address wind energy	Currently there is not an official policy for preconstruction surveys in Nevada; however, surveys of this site were done based on methods from surrounding states such as California and Arizona, as well as from coordination with expert groups such as Hawk Watch International and Great Basin Bird Observatory. Additionally, survey protocols were provided to NDOW in June 2007 for review.
1	19	BR	30	10	Additional information is needed in regard to anticipated bird and bat mortality in the Spring Valley Wind Energy Facility Project Area. With such a large number of birds and bats frequenting the area, it is imperative to know how minor or severe the impact will be before construction begins. These studies should include focus on the greater sage-grouse, golden eagle, and special-status bats.	Two years of pre-construction avian and bat surveys were completed for the project. To date pre-construction data is useful to help with siting, but a strong correlation between pre-construction data and post-construction mortality numbers has not been found (NWCC 2010). Therefore, additional surveys would not provide additional data that would change the analysis or mitigation presented.
1	20	BR	19	8	Especially in light of the decimation of the bat population by White-Nose Syndrome, we simply cannot afford to "experiment" with massive bat slaughter. We need to stop all bat killing activities until either White-Nose is brought under control or Big Wind has peer-reviewed, proven techniques to avoid any bat mortality.	This project is being developed to produce renewable energy and the EA utilizes proven methods as well as additional experimental methods developed by professionals in wind/wildlife interactions to manage possible impacts so that they remain below significant levels. Addressing white-nose syndrome is outside the scope of this project and associated EA. Many peer-reviewed methods are proposed for this project, such as turbine cut-in speed, which has been effective in reducing bat fatalities by 53% to 87%. In addition, the turbines can be shut down for up to 37, 500 turbine hours during higher risk times of the year.
3	20	BR	20	10	Add in raptor deaths and the inevitable rodent overgrowth and we will start seeing all the rodent-borne diseases surging again, from Bubonic Plague to Lyme Disease and Hantavirus-again these are debilitating, deadly illnesses that are only kept in check by keeping the ecosystems in balance. Killing raptors is a really, really bad idea.	Measures have been developed in the ABPP (Appendix F) to address raptor mortality. Additionally, claims of rodent overgrowth and rampant disease are unsubstantiated.
5	21	BR	19	7	Large wind turbines are hazardous to bats.	Extensive measures have been developed to mitigate impacts to bat species. See Appendix F.

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Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
1	21	BR	19	10	The proposed Spring Valley wind energy project utilizing 75 wind turbines should be canceled due to possible negative impact on 3 million Mexican free-tailed bats which roost at nearby Rose Cave.	Measures have been developed to mitigate impacts to Mexican free-tailed bats and all other bat and bird species. See Appendix F.
4	21	BR	20	6	Large wind turbines are hazardous to birds.	Potential impacts to all birds, including passerines, are described in the EA in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 using the best available data and currently accepted methods. The ABPP (Appendix F) includes measures to reduce avian mortality.
3	22	BR	30	10	The impact on wildlife may be under "consideration" by BLM and the builders, but I bet it is totally unknown the exact impact until after this nightmare is built, then it will be just a little later for the bats, and the deer and elk and antelope and cattle wherever these wind turbines are built. As a sportsman, I am truly concerned about the wildlife, and the potential absence thereof.	It is correct that an "exact" mortality cannot be determined, however, the analysis has been done using best available data and currently accepted methods. Conservation and mitigation measures, included those in the ABPP (Appendix F) have been developed to manage possible impacts to levels below significance.
87	26	BR	3	10	There is no way all of these systems will be effective in preventing significant impacts from an ill-sited project like this. No experiments can be conducted on these Volant species and populations can be conducted without an EIS.	An EIS does not dictate the level of surveys or mitigation necessary to reduce impacts. The EA utilized proven methods as well as additional experimental methods developed by professionals in wind/wildlife interactions to manage possible impacts so that they remain below significant levels.
65	26	BR	19	10	How might these changes in turbines affect the bats and their flights? Will air currents change? To what degree do the turbines themselves alter air flow? Under what conditions may the "plumes" not be detected sufficiently in advance? How many bats will be killed if the system doesn't shut down and a plume gets goes undetected or gets impacted? Dozens? Hundreds? Thousands? There is so greatly inappropriate a site for a wind farm. BLM must deny the permit.	The effects on bat behavior are described in Sections 4.2.2.7.2 and 4.2.3.7.2 of the EA. Air currents are altered on a short-term, site-specific level as wind passes though the turbines, but air currents will not be altered in the context of Spring Valley. The on-site radars will be tested prior to controlling turbine shutdowns to ensure detection of bats leaving the cave. In addition, an acoustic detector will be placed and the entrance of the cave to provide arrival and departure data. In the short term, a plume may go undetected and some percentage of the plume may be killed. However, the ABPP includes adaptive measures to ensure long-term impacts effecting populations do not occur. It should also be noted that shut-downs and cut-in speed changes can be implemented without radar, based on use and mortality monitoring data.
90	26	BR	19	10	How many bats will die while waiting for a "next phase" of curtailment to kick in?	An exact number of individuals killed cannot be determined, however, additional curtailment can be implemented almost immediately following exceeding of a threshold.
86	26	BR	20	7	We view it as an outrage that the proponent (and apparently BLM and NDOW) consider some avian species "expendable" and their presence even in significant numbers, would not result in the project being shut down.	The EA does not state that any avian species are "expendable" and a detailed ABPP (Appendix F) has been developed to address potential mortality. The mortality thresholds are indicators to start mitigation based on the best current information. It is also expected that the TAC will recommend adjustments in the mortality thresholds as new data become available.
61	26	BR	20	8	Why is it somehow acceptable that Texas mortality is at levels "expected"? Why isn't industry simply siting these projects responsibly - and not in a Volant species Hotspot? Levels "expected" says nothing about the severity of the impact to a particular species - like Yellow-Billed Cuckoo, Loggerhead Shrike, Golden Eagle, various warblers, thrushes, flycatchers, and other rare and declining migratory birds and raptors.	Mortality levels in Texas and how the industry is siting projects as a whole is out of scope for this project and associated EA. This EA is focused on the Spring Valley Wind project located in Nevada.
50	26	BR	20	9	The EA states that the golden eagle was observed in the RSA "constituting 30.8% of the observations during passerine surveys and 50% of the species' observations during raptor migration surveys". Golden Eagles disperse over large areas and several mountain ranges in the Great Basin. Constant mortality at Spring Valley is likely to result in serious declines in local and potentially regional populations.	Golden eagle were observed on less than 20% of raptor migration surveys and are rare mortalities at wind facilities. The ABPP, which includes golden eagle specific mitigation, has been developed to prevent the possibility of any serious declines.
89	26	BR	20	10	How many birds will die while waiting for a "next phase" of curtailment to kick in?	An exact number of individuals killed cannot be determined, however, additional curtailment can be implemented almost immediately following a threshold being exceeded. The mortality thresholds are indicators to start mitigation based on the best current information. It is also expected that the TAC will recommend adjustments in the mortality thresholds as new data become available.
42	26	BR	20	10	A very large number of nesting raptors was detected - in the project area and within one mile. How many miles do Golden Eagles, Ferruginous Hawks, any other raptors forage from nest sites?	Data collected for the project area over two years indicate that nesting raptors are relatively low in the area. Only one active nest actually occurs within the project area, and none occur within 1/2 mile of a turbine for BLM's selected alternative. Additionally, raptors foraging in the area is described in EA Section 3.2.6.
67	26	BR	20	10	There is no real analysis of the severe likely effects to Golden Eagles, wintering Rough-Legged hawks, and other wintering raptors that may be attracted to the valley, with its unique mountain of large size, relative diversity of pasture and desert lands, power line perches, relatively abundant irrigation and water areas, often snow-free valley floor vegetation, as well as mountain slopes for year-round diversity of prey types. The diverse setting that includes water areas contrasts with most other snow-free valleys in the Great Basin. The toll taken on wintering raptors is likely to be very severe.	Detailed analysis of impacts to raptors specific to this site are described in Sections 4.2.2.6 and 4.2.3.6 using the best available data and currently accepted methods. The ABPP (Appendix F) was designed to address potential mortality issues year-round.
38	26	BR	20	10	The EA at 47 claims that nocturnal migrating passerines would not be affected. This ignored the impacts of bad weather, migrating passerines forced down into the valleys for several days - as occurred in spring 2010 in much of central Nevada. Detailed ground-based surveys over a 10 mile or more area - including edges and valley bottoms should have been conducted.	The EA states, "Nocturnally migrating passerines usually fly at great heights, sometimes as high as 925 m (3,037 feet) (Able 1970). Therefore, it is assumed that nocturnally migrating passerines would not occur within the rotor-swept area (RSA) of the WTGs in the project area with the exception of a flock using the area as a short stopover." This statement addresses the potential for nocturnally migrating birds to stop in the area for a short time. The impacts analysis for birds considers nocturnal migrants and the ABPP (Appendix F) provides mitigation measures that would reduce potential impacts to those species during high use, low visibility weather events.

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43	26	BR	20	10	The EA uses a quote from HWI pointing out the significance of the SNAKE RANGE to migrating raptors. To claim just the opposite, in a clumsy attempt to minimize adverse impacts to raptors. The Snake Range is the Range that lies right next to the eastern project boundary. It is also where Rose Guano Bat Cave is located.	The statement is supporting the fact that raptors tend to migrate along large geographic features such as ridgelines and use valley bottoms such as where the project area occurs for migration much less frequently.
37	26	BR	20	10	The valley and steep basin and range topography are so unique. This includes some flowing streams in the Schell Creek Range and other areas that are likely to serve as important refueling stops for migrants. It is extremely likely that with adverse weather, migrants will be killed in large numbers in the valley below.	The project is not proposed within the adjacent mountain ranges or near flowing streams. Potential impacts to all birds are described in the EA in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 using the best available data and currently accepted methods. The ABPP (Appendix F) includes measures to reduce avian mortality.
33	26	BR	20	10	This are is an important area for migratory birds. The valley is a magnet for wintering Golden eagles and other raptors, for example. So just as with Brazilian free-tail bats, large losses of wintering raptors may have impacts that reverberate over a vast land area, and may affect not just local but regional populations.	Potential impacts to all birds, including raptors, are described in the EA in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 using the best available data and currently accepted methods. The ABPP (Appendix F) includes measures to reduce avian mortality.
68	26	BR	20	10	To the north is the Goshute Range, a very arid range with limited riparian areas. However, it is a magnet for raptors. Migrating songbirds rely on riparian vegetation or moister valley areas to provide insect foods. These lands in and surrounding the Project Area may be especially important for migrating avian species.	Migration has been studied for the project area and is described in the EA in Section 3.2.
46	26	BR	21	6	The EA states "no specific greater sage-grouse surveys were completed". Yet there are several leks within 5 miles of this project and siting in this location would likely cut off movement north-south further isolating populations. Every other wind or energy project of which we are aware in recent years has provided significant info and monitoring info on Sage Grouse. Can Ely BLM really be serious, and let this project further destroy, reduce and fragment already small and declining Sage Grouse populations? The EA again indefensibly points to acres of sagebrush in the valley - as somehow implying all acres are created equal. There is NO analysis of the specific habitat characteristics and components affected, or the cumulative effects of all the gravel pits, road, lines, associated with this SNWA, and other foreseeable energy development n habitats and populations for any sensitive species. Necessary monitoring and mitigation cannot be applied without concrete biological data. Please review all the Chapters of the Studies in Avian Biology monograph on Sage Grouse (Knick and Connelly 2009). This information is available at the USGS Website, and Ely BLM must be aware of it. WWP has submitted this info to Ely BLM on numerous occasions, as well.	The project area is surrounded by existing roads, transmission lines, ranches, and agricultural areas, and the area has been heavily grazed. These factors led to the determination of low-quality habitat in the area. Higher quality areas are described in the EA as those along the benches. Analysis of the loss of impacts is included in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently acceptable methods. The cumulative impact to grouse, including those from SNWA, are described in Section 5.2. Compensatory mitigation has been included in Section 6.4.
47	26	BR	21	9	What is the status of the populations of Sage Grouse throughout the valley? How will this project fragment, reduce, and destroy habitats?	No studies specifically on the population within the entire valley have been completed; however, a much higher number of active leks has been recorded in the northern portion of the valley. A description of habitat impacts is provided in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently acceptable methods. Additionally, a summary of SNWA's recent sage-grouse telemetry study has been added to Section 3.3.4.
48	26	BR	22	6	What is the status of the populations of Pygmy Rabbits throughout the valley? How will this project fragment, reduce, and destroy habitats? How do the project area burrows connect to any other active burrows, potential habitats, occupied habitats?	No studies specifically on the population within the entire valley have been completed; however, larger areas of contiguous tall, dense sagebrush providing better habitat are located south of the project area. Burrows in the project area are not connected to other burrows. A description of habitat impacts is provided in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently acceptable methods.
27	26	BR	28	6	The grave risk of rehab failure in this harsh arid site is not addressed.	The Restoration Plan includes adaptive management in Sections 3.2.3 and 4.1.1 if restoration is not successful.
6	26	BR	28	6	There is also no valid analysis of how extraordinarily difficult any rehab or restoration actions may be in association with any part of this ill-sited project.	The EA states that restoration could take 10 years and that timeframe is considered in the analysis for impacts. Additionally, the Restoration Plan in Appendix A provides means and methods for measuring success and addressing non-success.
11	26	BR	28	10	This valley area is highly sensitive to disturbance, and receives minimal precipitation so any recovery or rehab is extremely difficult and likely impossible given all the expanding weed threats and continuing grazing disturbances. Ely BLM informed me that lands on the east side of the valley in Taft Creek and other areas has burned in the 1990s, yet only weeds and a few scraggly grasses occur in these sites - a decade or more later. Any recovery of wind farm- disturbed areas is long-term and in many instances irreversible. With continued grazing disturbance, it is likely to be impossible.	Restoration can be achieved by utilizing the correct methods. The EA states that restoration could take 10 years and that timeframe is considered in the analysis for impacts. Additionally, the Restoration Plan in Appendix A provides means and methods for measuring success and addressing non-success.
80	26	BR	29	6	The Project-Specific mitigation measures are minimal and greatly inadequate. Why is no disturbance to any pygmy rabbit not being considered? Where is detailed mapping to understand all habitats, with requisite complex shrub structure? Moving rabbits is not mitigation. It is salvage - and shows the project developer only desires to shove anything that stands in the way of destruction aside. There is no info or analysis of where any rabbits would be places, potential for spreading diseases, condition of any habitats especially since Ely BLM Veg treatments have so greatly reduced and destroyed Pygmy Rabbit habitats. Botanical studies in full must be conducted as part of an EIS process, not as an afterthought on the eve of turbine construction. This too is not "mitigation".	There are substantial conservation and mitigation measures listed in Chapters 2 and 6 of the EA as well as its appendices. Disturbance to pygmy rabbit is disclosed and analyzed in Sections 4.3.2.1 and 4.3.3.1 using best available data and current methods. Mapping of vegetation and species habitat is available in the biological report prepared by SWCA and is described and quantified in the EA. The EA describes the habitat on site and the selected alternative includes avoiding occupied and high-quality pygmy rabbit habitat. Assessment of impacts to botanical species was completed using the best available data and includes mitigation and conservation measures as necessary.

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82	26	BR	29	10	We believe that full shut down during spring, summer, and early fall is the only safe mitigation. The proponent has persisted in pursuing a facility in one of the worst places imaginable for Volant species.	This would not meet thepurpose and need for the project. The ABPP does however include extensive shut-downs and cut-in speed changes that could be implemented during those times if thresholds are exceeded.
85	26	BR	29	10	Aren't there other very significant bat caves, including maternity caves, in this areas too? Just putting a radar unit at Rose Guano will not protect the other bats that use this unique limestone cave region.	Bat use, including caves, is described in Sections 3.2.8 and 3.3.6. Three radar units would be placed within the project area to address both birds and bats. No radar units would be placed directly at Rose Guano Cave.
79	26	BR	29	10	There is no valid analysis of all the current and foreseeable stresses on the populations of important and sensitive and imperiled species threatened by this project, and the sequential development and massive industrialization of Spring Valley. Thus there is no way that appropriate mitigation can be understood.	All analysis presented in the EA is based on the best available data and is consistent with the BLM NEPA Handbook, the BLM Wind PEIS, and other currently accepted methods. The EA also includes analysis of the cumulative impacts of past, present, and reasonably foreseeable projects in Section 5.0.
57	26	BR	29	10	This EA and the greatly inadequate mitigation/monitoring Plan violates BLM's policies for sensitive species, the federal candidate species Greater Sage Grouse, and for protection of Golden Eagles and other rare wildlife.	As described in the EA, all regulations have been or will be met though the approval process.
93	26	BR	30	6	The avian surveys, including those for Golden Eagle, have been greatly inadequate. Distances used to consider impacts are - frankly - laughable. The EA avian impacts analysis is biologically indefensible, BLM and the proponent ignored significant public input and concern.	Currently there is not an official policy for preconstruction surveys in Nevada; however, surveys of this site were done based on methods from surrounding states such as California and Arizona, as well as from coordination with professional/expert groups such as Hawk Watch International and Great Basin Bird Observatory. The ABPP addresses additional survey efforts to address potential impacts. The analysis in the EA is based on current biological and ecological knowledge and backed up by current literature using the best available data. Public input was incorporated into the process and used to help develop the action alternative as well as analysis and mitigation measures.
29	26	BR	30	6	The site specific Baseline data for nearly all elements of the environment is greatly lacking. Spring Valley Wind (Pattern Energy/The Carlyle Group) couldn't even be bothered to conduct necessary Baseline surveys to determine salt desert shrub, sagebrush, and other vegetation types and their complex interspersion and current ecological condition and risks in detail so the degree of loss can be understood, the proper mitigation developed, the severity of weed infestation at present, or following any development be understood, and much other necessary data and analysis occur. This is also necessary to use in a comparison with other potential sites - such as brownfields or weedlands.	A description of the baseline vegetation communities within the Spring Valley Watershed and Alternative Action areas is presented in Table 3.3-1. A Weed Risk Assessment including required preventative measures is presented in Appendix G of the Preliminary EA. The restoration plan (Appendix A) also provides an description of the on-site vegetation and measures to restore it after use.
45	26	BR	30	6	The EA attempts to translate acres of habitat into "habitat availability" for species . This too is biologically indefensible. Many complex factors enter into the habitat "value" for sensitive species. For example, Sage Grouse, a landscape species, move over large areas of the landscape over the course of the year, and a complexity of sagebrush communities are required to fulfill these needs. Sagebrush used by the Sage Sparrow is NOT the same as the sagebrush used by Sage Thrasher. The EA discussion of Sage Grouse demonstrates BLM is violating its own IMP and Conservation Policy for this species.	Sections 4.3.2.4 and 4.3.2.4 contain analysis on the impacts to grouse habitat as well as behavioral effects. Although within an area designated as winter habitat, the area was delineated at a coarse scale and locally, the habitat is low-quality. The use of the area is described in Section 3.3.4.
44	26	BR	30	6	NEPA requires sound and rigorous review of science. Unfortunately, in the case of SVW EA, all the public gets is Project proponent-serving statement. limited to Baseline info, and cover-up of the severe biological conflicts that siting a bat, migratory bird and raptor killing project in this critical area would have.	Two years of intensive bat and avian surveys were conducted in the project area. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
30	26	BR	30	6	"Plan at 3 states: Bat activity was generally much greater in survey locations near sources of water. Activity was dominated by four bat species: western small-footed myotis, little brown bat, long-eared myotis, and Brazilian free-tailed bat. The remaining eight species contributed 9% of all data. While all bats should be considered to be at risk from injury or mortality at WEFs, published literature indicated that some species are more commonly reported as mortalities in the western United States (Arnett et al. 2008; BLM 2005). For example, complications of multiple bat mortality studies at two other WEFs in the western United States, Arnett et al. (2008) and BLM (2005) have shown that the big brown bat, silver-haired bat, western red bat, hoary bat, little brown bat, and Brazilian free-tailed bat accounted for all identifiable bat carcasses from available bat mortality studies." Shouldn't this have caused even greater alarm among agency biologists, and resulted in telling the project proponent to find another much less sensitive and critical site? What political power or "pull" does SVW have on this biologically calamitous project is being pursued?	The alternative development alternative (BLM's selected alternative) includes siting away from high-use areas such as the water sources cited in this section.
70	26	BR	30	6	EA Section 4.2.12, various Tables and Texts describe effects related to a "typical" wind facility. This is NOT a typical setting, so such minimal analysis is invalid.	Because the EA tiers to the analysis in the BLM Wind PEIS, this section summarizes the relevant impacts described in the Wind PEIS, not the specific impacts of the proposed Spring Valley Wind Energy Facility. Section 4.2.2 goes on to describe the project-specific impacts.

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71	26	BR	30	6	It is hard to follow the analysis in the EA. Sections 4.2.2.5 claim impacts to songbirds would generally be the same as the PEIS - yet full area-specific studies necessary to understand impacts including under adverse weather, have not been conducted. Necessary site-specific studies to determine any "avian mortality threshold" have not been conducted. There has been no valid local, regional or rangewide avian or bat population analysis and cumulative impacts analysis, so the statement that the mitigation measures address this is invalid (EA at 84, 86, 88)	Two years of intensive avian surveys were conducted in the project area, including during inclement weather. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory. To date, pre-construction data have not been successful in predicting actual mortality numbers. However, a threshold has been developed by evaluating other current projects that have similar habitats and species present.
92	26	BR	30	6	Our previous comments requested and identifies the need for a greatly expanded environmental Baseline studies, and detailed analysis of the status Sage Grouse, Pygmy Rabbit and other rare species in the region, and in the landscape affected by the project. The same analysis must be applied to rare plants and pollinating insects, rare bats, Loggerhead Shrike, Golden Eagle and all other species. Then, what other stresses may occur to populations that would increase or amplify risks of the wind facility? For example, the Elko BLM Website has a PDF warning the public about adverse effects of White Nose disease in bats. If Brazilian freetail bat population is exposed, how might that change any estimates of viability? Despite great concern over the impacts to the Brazilian Freetail Bat and other important and rare biota, the magnitude of risk still has not been adequately defined.	All analysis presented in the EA is based on the best available data and is consistent with the BLM NEPA Handbook, the BLM Wind PEIS, and other currently accepted methods. The EA also includes analysis of the cumulative impacts of past, present, and reasonably foreseeable projects. Unknown stresses to current populations that are not reasonably foreseeable cannot be included in the EA. Furthermore, inclusion of speculative risks, such as white-nose syndrome, is outside the scope of this project and associated EA.
28	26	BR	30	6	Our review of the latest EA and this Plans/Appendices finds that the biological data and analysis, and assumptions that serve as the basis for the plan are greatly inadequate. Adequate Baseline surveys over a sufficient land area, as well as over a sufficient period of time and repetition of surveys over varying weather conditions over a period of years still have not been conducted. Thus, there is no way to develop a valid Plan for wildlife. Please see WWp comments on the first PEA, discussing the biologically indefensible limited distance raptor, migratory bird, and other surveys were conducted. The EA/Plan provide a greatly inadequate description of the setting of the topographic features and biotic communities that support globally significant populations of rare bats and migratory birds, raptors and other native wildlife.	The analysis in the Preliminary EA and the mitigation measures presented in the ABPP are supported by two years of intensive bat and avian surveys that were conducted in the project area, including during varying weather conditions. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
69	26	BR	30	6	Section 4 of the EA fails to provide necessary detailed site-specific analysis including full consideration of adverse effects, and science demonstrating adverse effects. General and vague terms are used to describe impacts. Examples: "greatest effect in highest noise areas". Well, what will be the highest noise, and how will each species of concern be affected by it? What will the cumulative effect of all noise be? This type of analysis must be done for all adverse effects so that the severity of effects can be fully understood. Then, absurdly on page 79, the EA appears to claim that 55 dBA is "consistent with the current ambient noise."	It is not clear where the reference "greatest effect in highest noise areas" comes from or the context from which it was taken. In Section 4.2.2.1.1 of the Preliminary EA it states: "Increased noise associated with construction activities would reduce the quality of reptile and amphibian habitat intermittently throughout the 9- to 12-month construction phase. Noise levels for typical equipment that would be used during the construction phase range between 80 to 90 dBA at a distance of 50 feet. The intensity of construction activity would vary over the course of the 9- to 12-month construction phase as equipment is moved throughout the area to complete the different facilities, infrastructure, and WTGs. Increased noise from construction would lead to habitat avoidance and would disrupt the foraging and reproductive behavior of reptiles and amphibians for the duration of the construction phase. " This analysis describes the specific noise levels, and distances to those noise sources as well as the effect to wildlife.
88	26	BR	30	6	The 30,000 wildlife study funding is greatly inadequate. Three years of mortality studies are greatly inadequate. The species-specific mortality thresholds are fraught with uncertainty - this whole complicated system appears to be nothing but an elaborate cover-up for a devastating and destructive wind project that everyone knows should NOT be located in this fragile remote and biologically important area. We note Table 4 average mortalities - instead of looking at Judith Gap mortalities and likely much great mortalities as what will occur here. Why is there a limit to curtailment?	The ABPP includes up to five phases of mitigation including up to $100,000 of funding for additional studies and on- and off-site mitigation in phase V. If mortality thresholds are exceeded following the third year, the TAC may recommend additional years of mortality studies be conducted to evaluate the effectiveness of mitigations. In addition, mortality surveys will be conducted every 5th year to ensure mortality levels remain below thresholds. Section 7.3 of the ABPP states provides the explanation for species specific mortality thresholds: "To determine species specific mortality thresholds, the relative abundance of that species has been determined using preconstruction survey data. That number is then used as a percentage of the overall mortality thresholds to determine the species indicator. The indicator is then multiplied by a species status factor to determine the species specific mortality threshold." The ABPP goes on to state that these numbers may be changed based on post-construction monitoring data. Changes in cut-in speeds stop being an effective mitigation at a certain point - that is why turbine shutdowns are added as a potential mitigation starting in phase II.
41	26	BR	30	6	The EA draws sweeping conclusions related to raptors without ever revealing if info was collected during adverse periods of spring and fall weather (RA at 47).	Two years of intensive avian surveys were conducted in the project area, including surveys for raptors during inclement weather.
34	26	BR	30	6	The proponents had a whole spring/early summer field season to greatly improve data acquisition and analysis and did nothing it appears. This is the same stale, limited info from the PEA.	Total survey effort for all bird surveys was more than 370 hours of survey time. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.

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66	26	BR	30	6	There is no valid analysis of the Worst Case, or even a Bad Case scenario. For example, the May-early migration period June 1020 was very cold and wet. During these conditions, I was hiking, camping and riving in similar habitats in central and northern Nevada. Migratory birds were bottled up down in valleys. They were desperate for insect food, landing on roads in valleys and suffering impacts from vehicle collisions. There is no valid analysis of the unique landscape for migrating birds and bars that this valley and adjacent mountain ranges provide. There is no valid analysis of the differing conditions and risk scenarios associated with spring vs. fall migration.	Two years of intensive bird and bat surveys were conducted in the project area, including during inclement weather and in all seasons of the year. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory. Additionally, on-site radar will be monitoring for large-scale events and will be able to adapt to those situations and create turbine shutdowns if needed.
49	26	BR	30	6	Without detailed Baseline site specific and field data, monitoring info from the site over all periods of time, risk analysis of likely losses to habitats and populations, and examination of the battery of cumulative effects faced by the affected populations, BLM can not possibly determine the degree of severity of habitat and population losses and fragmentation, or appropriate monitoring or mitigation. Nor can BLM have examined a reasonable range of alternatives.	Two years of intensive bird and bat surveys were conducted in the project area, including during inclement weather and in all seasons of the year. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
40	26	BR	30	7	Do where is the scientifically responsible upfront collection of data so the full impacts can be understood? It is utterly lacking in the meager EA.	Two years of intensive bat and avian surveys were conducted in the project area. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
36	26	BR	30	7	EA Section 3.2.5 states "biologists conducted more than 170 hours of bird surveys". This is almost nothing, compared to the effort made at other wind projects in the West. BLM must fully compare this meager effort to that at other large-scale public land wind development areas.	Total survey effort for all bird surveys was more than 370 hours of survey time. The 170 hours of general bird surveys refers specifically to surveys other than the raptor migration surveys. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
35	26	BR	30	7	For a project of such magnitude with such tremendous potential to kill migrating birds in spring and fall, and resident birds and wintering raptors, the amount of biological survey time and the area of the survey are extraordinarily meager.	Two years of intensive bat and avian surveys were conducted in the project area. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
39	26	BR	30	9	EA at 46 describes info as "in the project area". Why has radar data not been collected throughout the years? This has been decried for many years.	Based on conversations with NDOW following this comment, a measure has been added to the initial mitigation measures in the ABPP to complete nocturnal surveys using radar that will be on site. That data will be used to help inform adaptive mitigation measures if avian mortality is found that correlates to survey data. Reliable data regarding avian use in the RSA was collected and detailed in the pre-construction avian and bat study report by SWCA.
83	26	BR	30	9	Why haven't two full years of radar studies using all this equipment already been conducted? This is just the type of Upfront biological info that is necessary for inclusion in an EIS.	Based on conversations with NDOW following this comment, a measure has been added to the initial mitigation measures in the ABPP to complete nocturnal surveys using radar that will be on site. That data will be used to help inform adaptive mitigation measures if avian mortality is found that correlates to survey data. Reliable data regarding avian use in the RSA was collected and detailed in the pre-construction avian and bat study report by SWCA.
60	26	BR	30	10	There is no way to predict "expected" mortality here - since the surveys have been so poor for birds, population effects unaddressed. With bats, this is an irreplaceable population in the intermountain West. What happens if the radar fails? If the turbines don't get shut down in time? Plus - what are the avian species? Isn't the severity of impacts also related to the rare or declining species most jeopardized?	Two years of intensive avian surveys were conducted in the project area. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory. Peer reviewed data on the current facilities using the early warning system radar technology are not currently available. Dr. Thomas Kunz, Dr. Mike O'Farrell, and Dr. Steven Carothers have reviewed the plan and agree that the methods are appropriate and valid. The adaptive nature of the ABPP will ensure that additional mitigation is implemented if previously implemented mitigation, such as the early warning radar system, is determined to be ineffective. Appendix F Table 5 identifies species-specific mitigation for special status species birds. This would limit the number of individuals of rare or declining species that could be killed before species-specific mitigation would be implemented.
63	26	BR	30	10	"As described later in the phased mitigation measures, the radar system may also be used as an 'early warning' system, providing advanced detection of bird or bat activity that presents mortality risk with the ability to shut down turbines. If this method is implemented, any time the radar system detects a group of birds or bats (group size determined through at least a year of radar studies) within approximately 1/4 mile of the project area, coupled with low visibility for birds, and thresholds number of species within the RSA, the system will communicate with the turbines and they will automatically break and feather until the group exists the project area. The distance out to which the radar could initiate shutdowns will be evaluated as enough data are collected and adjusted as necessary…" This is absurd. How was a "threshold" determined for species - or the number of animals - to be viewed as expendable. Which species ARE expendable? What number of animals of each species are expendable? What info on local and regional populations, and existing and foreseeable threats to habitat is this based on? There is greatly inadequate biological data provided to determine what, if any, level of activity, number or type of species is expendable. A 1/4 mile distance is too close, distances of several miles mist be considered	The methodology for determining projected mortalities is speculative. Instead of speculating on what actual mortality numbers would occur, Section 4.2.2.7.2 of the Preliminary EA describes the bat mortality threshold based on an assessment of 11 other wind energy projects with the most similar habitats or environmental factors available. The thresholds are listed in Appendix F: Table 3 of the Preliminary EA. The assessment provides an average mortality rate for those facilities so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the Wind PEIS analysis. Section 7.3 of the ABPP provides the explanation for species-specific mortality thresholds: "To determine species specific mortality thresholds, the relative abundance of that species has been determined using preconstruction survey data. That number is then used as a percentage of the overall mortality thresholds to determine the species indicator. The indicator is then multiplied by a species status factor to determine the species specific mortality threshold." The ABPP goes on to state that these numbers may be changed based on post-construction monitoring data.
32	26	BR	30	10	It is hard to believe that greatly expanded (expanded in areal extent, location, duration, intensity) Golden Eagle, other Raptor, migratory bird, bat use, and other studies were not conducted?	Two years of intensive bat and avian surveys were conducted in the project area. Surveys were designed following widely accepted protocols and recommendations from groups such as Hawk Watch International and the Great Basin Bird Observatory.
19	27	BR	19	6	The cumulative impact of multiple wind facilities in Spring Valley are likely to greatly impact the species.	Cumulative impacts to bats are disclosed in Sections 5.1 and 5.2 of the EA.

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21	27	BR	19	9	The Draft EA, on page 88 (sct 4.2.2.7.2), makes an outlandish accusation that researchers have not been able to make a strong correlation between wind turbine mortality for bats, citing NWCC (2010) which is then not given the Literature Cited. This statement is not accurate and aims to dismiss the mortality of wind turbines on bat fatalities. In fact, recent scientific reports have shown that wind-energy facilities have killed large numbers of bats in the United States and elsewhere (see Arnett 2005; Johnson 2005; Durr and Bach 2004; Hotker et al. 2004; UNEP/EUROBATS 2006). Until recently, little attention had been paid to bat fatalities at wind-energy facilities. The scarcity of data on bat mortality had been due to the rarity of post-construction studies that specifically were designed to detect bat fatalities. Now that scientific methods are in place to directly assess bat fatalities, and since have shown large numbers of bat fatalities, it must be required for this SVWE Project that post-construction monitoring estimate bat mortality and prevent the mortality rate to exceed a threshold set specifically for bats within the Spring Valley area.	The NWCC was mistakenly omitted from the literature cited and has been included. The statement does not attempt to say that bat mortality does not occur, but rather states that to date, researchers have not been able to utilize pre-construction data to accurately estimate post-construction mortality numbers for bats or birds. The potential for mortality to bats, as well as a threshold, is disclosed in the EA in Sections 4.2.2.7 and 4.2.3.7. The threshold and associated mitigation are also described in the ABPP (Appendix F).
22	27	BR	19	10	Because wind-turbine size may impact mortality rates of bats, the Draft EA must address how the proposed size of wind turbines at the SVWEF are likely to impact bats.	The potential for mortality to bats is disclosed in the EA in Sections 4.2.2.7 and 4.2.3.7. This assessment is based on the specific size and location of turbines for the project.
23	27	BR	19	10	Because of the CTGR's concern for turbine-related bat mortality, we are happy to see that adaptive management will be implemented to protect bat species and their migrations through Spring Valley. Because of the importance of Spring Valley as our ancestral homeland and the high risk of large Brazilian free-tailed bat mortalities within the proposed project area, the CTGR must have an opportunity to review and comment on the adaptive management plan for bats and the annual monitoring and management reports.	The ABPP (Appendix F) was included as an appendix to the EA and was available for public comment at the same time as the EA. Post-construction mortality data will be available to the public.
17	27	BR	19	10	The CTGR is greatly concerned about the potential impacts of the proposed wind energy project on bats and their migratory corridor. Clearly, one of the major impacts from WTGs is the death toll of bats. In particular, the Brazilian free-tailed (Tadarida brasiliensis) has a major migratory corridor through Spring Valley and the Rose Guano Cave (ca. 4 miles from the proposed energy facility) serves as a major stop-over for >1 million of those individual bats. This is of great concern to the CTGR because the migration in eastern Nevada and in our ancestral territory is a unique biological phenomenon that should be conserved rather than ecologically taxed.	Large mortality of bat species has been recorded at some wind facilities, primarily when sited without evaluation of resources and implementation of appropriate mitigation measures. Although this facility is near Rose Guano Cave, careful placement of turbines away from heavily used areas such as water sources and agricultural fields has been proposed to help reduce impacts. Additionally, the ABPP (Appendix F) provides a comprehensive adaptive management plan to address mortality that includes turbine cut-in speed which has been effective in reducing 53% to 87% of bat fatalities as well as robust hours for which the turbines could be shut down during high use times of the year.
24	27	BR	20	10	Because of the cultural significance of birds in Spring Valley to the CTGR and their associated mortality risk from the SVWEF, the CTGR must have an opportunity to review and comment on annual post-construction bird monitoring and the adaptive management plan associated with the SVWEF.	The ABPP (Appendix F) was included as an appendix to the EA and was available for public comment at the same time as the EA. Post-construction mortality data will be available to the public.
14	27	BR	21	10	The Draft EA fails to fully describe potential impacts to the sage grouse and its habitat, a BLM-sensitive species that has been subject to listing petitions and lawsuits under the Endangered Species Act. The Draft EA states that no sage grouse-specific surveys or habitat assessments were conducted, but that individuals are known to occur within close proximity of the project site and that potential habitat exists on-site. Further, research has demonstrate the sage grouse use habitat areas up 1.3 - 1.5 miles from lek sites for foraging and other purposes, and females will move around three miles. But sage grouse also have been found to move substantial distances annually, anywhere from 6 miles for non-migratory grouse to 22 miles for migratory grouse. Given that there is high quality habitat in Spring Valley and in close proximity to the project site, it is entirely probably that grouse within those distances use habitat within the project site and within close proximity to the site. Thus, the EA must take into consideration what the impacts will be on the sage grouse outside of the project area as well. In addition, while the EA does state that construction activities, operation and maintenance are likely disturb habitat, it needs to more specifically state that habitat will be lost and fragmented. The EA must state more explicitly how	The EA considers impacts, including those outside of the project area, to sage grouse in Sections 4.3.2.4.1, 4.3.2.4.2, 4.3.3.4.1, and 4.3.3.4.2. Additionally, the Alternative Development Alternative (BLM's selected alternative) includes a 2-mile avoidance area of active leks. Section 4.3.2.4.1 specifically quantifies the acres of lost habitat and discusses habitat fragmentation and quantifies what that would be.
16	27	BR	22	6	The potential impacts to pygmy rabbits are not sufficiently considered or disclosed, especially given that the species is actively being considered for listing under the Endangered Species Act and is a BLM sensitive species. First, the methods used to determine pygmy rabbit presence/absence and activity levels were not sufficient. While we understand that the survey methods are typical for proposed projects on BLM lands, surveys for rabbit pellets and active burrows do not provide a thorough and comprehensive assessment of rabbit use of a particular site for several reasons. First, rabbits may nest outside of the project boundary, but use particular areas within the project boundary for foraging and mating. Second, the rabbit's nocturnal activity patterns suggests that camera surveys are more appropriate for correctly concluding abundance, presence/absence, and activity levels. Moreover, the Draft EA tends to downplay the importance of some areas of the project area to pygmy rabbits based on old pellets and inactive burrows. Given the biology of the species, all areas that have evidence of the rabbit must be considered habitat and in use by the species. To consider otherwise is merely an attempt to downplay the importance of the site to the pygmy rabbit and reduce the total area of potential impact to the species from the proposed project.	Pygmy rabbit surveys were conducted using current protocols from NDOW (2004) and Ulmschneider (2004). These are the accepted protocols for pygmy rabbit surveys which include surveys of the entire site based on habitat. Ulmschneider (2004) states that ideal pygmy rabbit habitat occurs in continuous patches of dense (>30% cover) sagebrush. NDOW (2004) survey protocol indicates that surveys should be done in sagebrush ranging from 3 to 4 feet tall. Soils must be friable and suitable for digging burrows. As stated in the EA, 3,643.2 acres of potential habitat were identified. The EA further quantifies areas with correct habitat features, which includes sign of past use, as high potential, and areas with active systems as occupied. The EA further states that the sensitive nature of the species means that impacts would have an increased intensity over those of general small mammals.

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31	27	BR	28	6	If the project moves forward, it will clearly impact sage brush habitat and numerous sensitive species that occur at the site. Therefore, the BLM must develop a habitat restoration plan and implementation strategy that effectively restores habitat for those species. Because our people use the region for its spiritual, botanical, and wildlife resources, the CTGR must have the opportunity review and comment on such a plan.	A habitat restoration plan is included in the EA in Appendix A and was available for public comment at the same time as the preliminary EA.
15	27	BR	28	6	The EA attempts to soften the impacts on sage grouse habitat by stating that "… post-construction reclamation of short-term disturbance areas… could take an estimated 10 years before… successfully reclaimed." While the CTGR encourages such reclamation, scientific research has repeatedly demonstrated that sage brush habitats do not simply transition to the same habitat following site disturbances. In fact, the successional stages that the habitat goes through often times will either take several decades to transition back to its natural state, or will simply not move back to that prior state. Thus, any ground disturbance to sagebrush habitat will be a long-term disturbance to sage grouse populations, lek activity, reproductive output, etc. Stating otherwise misleads the public on these potential impacts to sage grouse and its habitat, and constitutes an insufficient consideration of impacts.	The EA states that these impacts will be long-term impacts.
28	27	BR	29	9	The BLM is under several directives to protect sage grouse habitat. First, under the directive of BLM Manual 6840.2, projects on BLM-administered lands shall "… implement measures to conserve these species and their habitats, including ESA proposed critical habitat, to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA." Second, NRS 501 and NAC 503.093 provide state-level protection for special-status species, like the sage grouse. Third, Nevada State policy was established by Governor Jim Gibbons to "...preserve and protect sage-grouse habitat..." While the BLM may not be subject to certain state-level policies, the sage grouse policy devised by Gov. Gibbons clearly identifies that the sage grouse is an iconic species of the Great Basin and important to the citizens of Nevada and the US. Importantly, the region, including the entire project area, is within sage grouse wintering range and rearing/nesting habitat, but the EA fails to fully disclose this and fails to appropriately offer mitigation strategies that protect the grouse. Appropriate mitigation must be identified by the BLM prior to any final decision regarding the SVWE Project. Prior to project construction, the project proponent must conduct sage grouse-specific surveys at appropriate times of	Best available data have been used to evaluate sage grouse use of the area and are described in Section 3.3.4. Detailed analysis of the impacts on sage grouse are described in Sections 4.3.2.4 and 4.3.3.4 using best available data and currently accepted methods. Mitigation measures for sage grouse are described in Chapter 6 of the EA, including those measures listed in the programmatic wind EIS. Additionally, a summary of SNWA's recent sage-grouse telemetry study has been added to Section 3.3.4.
29	27	BR	29	10	The BLM PEIS clearly states that migrating bats around wind energy facilities are at high mortality risk and therefore these energy facilities should not be located in areas known for bat hibernation, breeding, migrating, maternity colonies, or in flight paths between colonies and feeding areas. Moreover, Table 6.1-1 explicitly states that turbines should not be located near those areas. This runs contrary to the proposed SVWEF location, as it is proposed to be 1) located within 4 miles of the Mexican free-tailed bat's Rose Guano Cave; 2) bats are unknown to hibernate at the cave site; 3) this area of Spring Valley is a known migration corridor for several bat species; 4) and it occurs between colony sites and feeding locations. Under direction of the PEIS, this particular wind energy facility's location is poorly selected and must be located in an area subject to substantially fewer impacts. That said, the proposed adaptive management planning and implementation is not appropriate mitigation for this project, despite that adaptive management should be in place no matter where the energy facility is located. The BLM incorrectly uses the proposed adaptive management plan to offset appropriate mitigation.	As described in Table 6.1-1, measures in the ABPP have been prepared to off set the siting of this facility. These measures have been developed in coordination with the USFWS, NDOW, and other wildlife professionals/experts such as Dr. Thomas Kunz and Dr. Michael O'Farrell. Additionally, the BLM's selected alternative does include siting away from high-use areas such as water sites. If mortality is recorded at high levels during migration, or any time, shut-downs and cut-in speed changes are available as described in the ABPP to essentially stop operating during those key times. Therefore, if necessary per the ABPP, operations would not occur during migration, eliminating the need to site a facility away from the area.
20	27	BR	30	10	The Draft EA does not fully consider the potential impacts to the Brazilian free-tailed bat and to all bat species. To correctly estimate impacts on bats, the EA must provide projected fatality estimates based on data from other wind energy facilities. Statistically valid fatality estimates can be conducted using methods from Erickson et al. (2004), where he outlines methods for estimation of the total number of wind-facilities-related fatalities of bats.	The methodology for determining projected mortalities is speculative. Instead of speculating on what actual mortality numbers would occur, Section 4.2.2.7.2 of the Preliminary EA describes the bat mortality threshold based on an assessment of 11 other wind energy projects with the most similar habitats or environmental factors available. The thresholds are listed in Appendix F: Table 3 of the Preliminary EA. The assessment provides an average mortality rate for those facilities so as to not exceed typical impacts from a wind project in similar habitats; and therefore, remain consistent with the Wind PEIS analysis.
17	28	BR	20	10	The Draft EA provides no specific discussion or "hard look" at the potential that wind turbines will "take" - kill, molest, or disturb - bald or golden eagles in violation of the Bald and Golden Eagle Protection Act ("BGEPA"). The EA states that eagles do not nest in the Project area, but notes that they were observed during avian surveys. Draft EA, at 47, 56, 86. Because they are present in Spring Valley, the EA acknowledges that it is likely that the wind turbines will injure or kill eagles that utilize the Valley as foraging habitat. BLM does not address these potential impacts to eagles, whether they will be significant, or whether the project will violate BGEPA. While the EA states that BLM will not issue a notice to proceed until the project proponent completes its obligation under BGEPA, including coordination with the Service and obtaining any required permit, Draft EA, at 35, it goes on to acknowledge that the Service is not currently issuing permits under BGEPA.	The EA states that "injury or mortality of golden and bald eagles is expected to be a rare occurrence at the SVWEF," not that mortality is likely. The potential impacts to eagles are addressed in Section 4.3.2.5.2. The USFWS is not currently issuing take permits for golden eagles, but is able to issue letters of concurrence on Avian and Bat Protection Plans, consistence with their guidance for the BGEPA. The ABPP (Appendix F) now includes golden eagle specific mitigation measures to ensure no net loss of eagles. Additionally, IM No. NV-2010-063, Guidance for the Development of Project-specific Avian and Bat Protection Plans for Renewable Energy Facilities, precludes the issuance of a Notice to Proceed until the USFWS's letter of concurrence for the ABPP is received for the project.

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8	28	BR	21	6	Specifically discussing the threats to sage-grouse from wind energy development, the Service noted that wind projects "have increased in size and number, outpacing development of other renewable sources in the sage-grouse range." Id. At 13950. Currently, there are no published research studies on the specific effects of wind projects on greater sage-grouse. However, the Service anticipates that impacts from "direct habitat losses, habitat fragmentation through roads and powerlines, noise, and increased human presence will generally be similar to those [caused] by nonrenewable energy development." Id. at 13951. Scientists also theorize that noise from turbines and "shadow flicker", which may mimic predator shadows, may cause avoidance behavior. Id. The Service concluded that impacts of wind projects "can reach far beyond the point of origin and contribute cumulatively to other human-made and natural disturbances that fragment and decrease the quality of sage-grouse habitat." Id. at 13952.	The potential impacts to sage grouse have been addressed in Sections 4.3.2.4, and 4.3.3.4. Further, the BLM's selected alternative includes placing turbines at least 2 miles from active leks to address potential behavioral impacts. Habitat compensation has been included in Section 6.4 to address potential loss of habitat, consistent with the PEIS.
9	28	BR	21	9	The SVW Project EA includes a brief discussion of potential impacts to sage-grouse. Data gathered for the Ely Resource Management Plan ("RMP") identify the project area as both summer and winter habitat. Draft EA, at 55. Within one mile of the project area are three existing leks, at least one of which is currently active (the Bastian Creek lek). Id. BLM, however, did not perform sage-grouse surveys of the project area to determine whether and how many birds may use the area for nesting, brood-rearing, or wintering habitat or whether the project area provides habitat connectivity between other habitat areas in southern and northern Spring Valley. See FWS, Wind Turbine Guidelines Advisory Committee Recommendations at 34-35 (Mar. 4, 2010), available at http://www.fws.gov/habitatconservation/windpower/wind_turbine)advisory_committee.html (stressing importance of sage-grouse surveys for wind energy development in sagebrush habitat). Instead, the EA assumes that habitat is limited to 3,643 acres of sagebrush. The Fish and Wildlife Service specifically questioned the lack of sage-grouse surveys in its comments on the December Draft EA. Given the lack of data in the EA, the Service stated that "reaching a conclusion as to the risk presented to greater sage-grouse from this action appears premature ; FWS, Comments on the Spring Valley Proposed Wind	The FWS did not provide further comments on a lack of sage grouse data following review of the updated preliminary EA. As stated in the EA, only one lek 2 miles to the northwest of a turbine is active. The area provides low-quality sage grouse habitat and birds were not observed in the area during general use bird surveys. However, additional information regarding local movement patterns based on SNWA-provided telemetry data has been added to the EA.
10	28	BR	22	6	In evaluating impacts to sage-grouse, the EA acknowledges that sage-grouse are likely to avoid the entire project area and adjacent habitat during construction and that some sage-grouse may permanently abandon the area. Draft EA, at 97. Over the long-term, the EA assumes that greater sage-grouse may avoid an area up to two miles surrounding wind turbines. This would equate to a total avoidance area of 38,289 acres, or 9% of available sagebrush habitat in Spring Valley. Under the Proposed Action, wind turbines would be located within two miles of the Bastian Creek lek and could lead to a decrease in the success of the lek or lek abandonment. BLM concludes that the Alternate Development Alternative would reduce impact to the Bastian Creek lek by locating all turbines outside the two-mile lek buffer.	This statement is correct and the conclusion has not changed.
25	28	BR	24	9	The Draft EA does not describe what measures will be implemented if sensitive plant species are found during pre-construction surveys. The Project-Specific Mitigation Measure for Parish phacelia, Draft EA, at 156, should be modified to identify that both pre-construction surveys and appropriate salvage/other mitigation would be completed prior to the start of construction.	The following has been added to the mitigation measure in Section 6.4, "If individual plants are identified, turbines should be microsited outside of the population. If turbines cannot be sited outside of the plant population, plants should be salvaged, as determined appropriate by the BLM's authorized officer."
24	28	BR	27	10	It is unclear if a 1-miles or 2-mile buffer around the project site was assessed for noxious and invasive weeds using the BLM's database. The Restoration and Weed Management Plan text, Appendix A at 6, states a 2-mile buffer and Table 2 indicates a 1-mile buffer as does the Noxious Weeds Risk Assessment in Appendix G.	Per protocol, a 1-mile buffer is required for the weed risk assessment; however, for purposes of the restoration plan, a 2-mile buffer was considered.
23	28	BR	27	10	The Noxious and Invasive Weeds Risk Assessment relies solely on the Ely District weeds database and casual observations. These sources of information do not provide an adequate baseline assessment to measure the potential for, and consequences of, a weed invasion on the project area. The pre-construction weed surveys discussed in the Plan, at 13, should be done prior to the completion of the Risk Assessment for a proper evaluation.	The weed assessment was done using current protocols. Multiple preventative measures were outlined in the assessment to control noxious and invasive weeds. As required, pre-construction weed surveys would be completed.
27	28	BR	28	9	The Restoration and Weed Management Plan describes collection of data on species richness, percent cover density, and frequency, but successful restoration is described only relative to percent cover, Appendix A at 17. Restoration goals for the other criteria should also be provided. Lastly, the process and criteria the BLM would use in agreeing to lower the approved restoration standard should be identified.	Restoration success measurements are based on standard protocols. The following has been added, "If after restoration monitoring, it is determined by the BLM that 80% is not achievable, the percent cover will be lowered based on the BLM resource specialist's best professional judgment." Further detail on processes will be included in the COM plan for the project.
26	28	BR	28	10	Site-specific salvage activities are mentioned in the Restoration and Weed Management Plan, Appendix A at 13, however there is no description of what plants might be salvaged, where they would be stored, when and where they would be transplanted, etc.	The restoration plan discusses salvage of vertical mulch and topsoil. Salvage of general vegetation is not required for this project; however, if Parish phacelia are discovered in pre-construction plant surveys, they potentially could be salvaged if the turbines could not be micro sited out of the plant population.

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15	28	BR	30	6	The sage-grouse cumulative impact analysis is also insufficient to describe cumulative impacts of the SVW Project in combination with other reasonable foreseeable future actions in Spring Valley. The analysis amounts to a single sentence - "[Reasonable Foreseeable Future Actions] would contribute up to 7,062 acres of direct habitat loss and even greater habitat fragmentation for the greater sage-grouse and pygmy rabbit." Draft EA, at 137. The analysis does not discuss the indirect cumulative impacts of construction of these projects, including other wind projects, on sage-grouse throughout Spring Valley, including the total potential avoidance area, the percentage of that area in relation to all available sagebrush habitat in Spring Valley, and the practical implications of permitting these on the species abundance and persistence in the valley.	The cumulative impacts analysis was prepared using the best available data on reasonably foreseeable project. Therefore, not all cumulative impacts can be completely quantified at this time. However, the impacts of this project, if constructed, would be quantified and considered in the cumulative impacts section of any future projects. Cumulative direct and indirect impacts to sage grouse have been described qualitatively in Section 5.2 based on best available data and BLM Handbook requirements.
13	28	BR	30	9	The sage-grouse impact analysis is flawed for at least three reasons. Third, no conservation or mitigation measures are provided in the Draft EA to address the expected sage grouse avoidance or possible permanent abandonment of the SVW Project area and adjacent habitats. As noted in the Draft EA, this would encompass 9% of available sage grouse habitat in Spring Valley. If sage grouse habitat avoidance from wind development is even greater than 2 miles, as described above, the magnitude of impact would further increase.	As part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
14	28	BR	30	9	Given the lack of analysis of winter habitat impacts, questionable effectiveness of a two-mile buffer in protecting active sage-grouse leks from wind development impacts, and lack of mitigation to address avoidance or abandonment of a substantial amount of the currently available sage-grouse habitat, BLM has provided insufficient information to support its conclusion that impacts to sage-grouse will not be significant. SNWA is particularly concerned that BLM has not required compensatory or off-site habitat restoration for impacted sagebrush habitat, as recommended in the Wind Programmatic EIS, and required in the Ely RMP per management action SS-10. BLM justifies this decision based on its assessment that sagebrush habitat is of poor quality and has very low use levels in this area, two assumptions that are unsupported by any survey data in the record. SNWA has collected sage-grouse telemetry data suggesting sage-grouse move across the SVW Project area. Thus, the failure to require compensatory or off-site habitat restoration is in appropriate.	As part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration. An effort must first be made to apply the funds to sagebrush restoration within Spring Valley and then outside of the valley if necessary. Donations into this account are eligible for matching federal funding. All decisions of how to utilize the money will require both NDOW and the BLM approval. Additionally, SNWA's telemetry data have been included in the analysis for sage grouse.
11	28	BR	30	9	The sage-grouse impact analysis is flawed for at least three reasons. First, there is no discussion of the impacts of construction or operations and maintenance on winter habitat or wintering sage-grouse though the area is designated in the Ely RNO sage-grouse winter habitat. Researchers have found that sage-grouse often show fidelity for a small winter concentration area, particularly during harsh winters. Thus, "[i]impacts to winter habitat may have a disproportionate effect on regional sage-grouse population size and persistence if the species uses a small percentage of available sagebrush habitat in the area." J.M. Becker, et al., Department of Energy, Sage Grouse and Wind Energy: Biology, Habitat, and Potential Effects From Development, at 4.3 (2009), available at http://www.pnl.gov/main/publications/external/technical_reports/PNNL-18567.pdf. In the Draft EA, the BLM does not detail the use of the area as winter habitat, or whether the direct habitat disturbance and disturbances to behavioral activities in adjacent habitat during construction, operation, and maintenance will have disproportionate or significant impacts on wintering sage-grouse. The Proposed Action Resource Conservation Measure which restricts permitted activities from November 1 through May 15 within sage-grouse winter range, Draft EA at 23, does identify if this restriction applies to operation and	Sections 4.3.2.4 and 4.3.2.4 contain analysis on the impacts to grouse habitat as well as behavioral effects. Although within an area designated as winter habitat, the area was delineated at a coarse scale and locally, the habitat is low-quality. The use of the area is described in Section 3.3.4. The EA now defines the conservation measure as permitted "construction" activities.
12	28	BR	30	10	The sage-grouse impact analysis is flawed for at least three reasons. Second, BLM relies on a two-mile buffer to assume potential impact on active sage-grouse leks. As the Fish and Wildlife Service pointed out in its listing decision, there are no existing studies addressing the impacts of wind energy development on sage-grouse and thus, no way to confirm that a two-mile buffer is adequate. Some scientists have called into question the use of two-mile lek buffers. In 2003, the Fish and Wildlife Service recommended a five-mile buffer between wind development and prairie grouse leks. FWS, Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines (May 13, 2003). Recent recommendations from the Service's Wind Turbine Guidelines Advisory Committee confirm that impacts to sage-grouse from energy development are even greater than impacts to prairie grouse and research shows that development within three to five miles of active leks may have significant adverse impacts. FWS, Wind Turbine Guidelines Advisory Committee Recommendations. The divergence of authorities on sage-grouse lek buffers for wind development demonstrate that the impacts of the SVW Project, even if a two-mile buffer is imposed, are highly uncertain and controversial, indicating that an EIS is necessary to evaluate potentially significant impacts to the sage grouse. This is particularly true given that the	An EIS would not analyze significant impacts any more than this EA. Additionally, this EA is tiered to the BLM's Wind PEIS, consistent with the BLM Handbook and IM 2009-043. The buffer on sage grouse leks is one measure to help reduce impacts, but additional measures are included in Chapter 6. Additionally, habitat compensation has been included in Section 6.4. It is also speculative to say that the project will likely cause abandonment of the Bastian Creek Lek. The turbines were placed based on the available GIS and micrositing may be completed to address this issues as determined necessary in the field by the on-site environmental monitor and the BLM's authorized officer.
4	29	BR	3	6	It is critical that in evaluating the potential impact of projects on federal land, full surveys for plants and animals be done, normally in various seasons as different plant species are only present a few months a year.	All necessary surveys have been completed as described in the affected environment sections for each resource. Additionally, several follow up surveys have been identified in the mitigation measures and resource plans (see EA appendices) that would be completed prior to, during, and/or after construction.

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18	29	BR	19	6	The Draft Avian and Bat Mitigation and Adaptive Management Plan states: "During this study, turbine cut-in speeds will be altered from sunset to 4 hours after sunset for a 62-day period (248 hours) during the highest use period of August 1 through September 31." There are 12 other species of bats that could potentially be impacted by this project from May to the beginning of August. An adaptive management plan should be created for the additional species at risk as well.	The cut-in speed study from August 1 to September 30 is a starting point for mitigation correlating with the highest use period documented in pre-construction bat and radar surveys. The ABPP provides for additional cut-in speed changes and shut-downs at any time of the year in a phased approach to address impacts to both bats and birds.
19	29	BR	19	10	The EA states: "The project proponent will provide $10,000 per year for three years to fund wind/wildlife interaction studies. Research will be recommended by the TAC, approved by the BLM Authorized Officer, and funded by the proponent. Additionally, the BLM or other participating agency may elect to contribute funding. In that event, the proponent would provide funding to the BLM, and the BLM would issue a Request for Proposals for the study." Studies are not mitigation for wildlife loss in any situation. More specifically, a $30,000 research fun will not bring back the Rose Guano Cave population of Mexican free-tailed bats if the wind farm causes a giant population crash. This is not an acceptable mitigation plan.	The $10,000 per year is intended to add to research to help provide a net overall benefit. However, it is not intended to mitigate all impacts to bats or birds. There are many initial mitigation measures as well as adaptive measures that have been developed and described in the ABPP to manage possible mortality levels below significant levels.
16	29	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan in no way convinces us that bat mortality can be avoided. It is frivolous for the BLM to consider approving a Right of Way for a project that is so close to the Rose Guano Cave and in a region that has such a robust population of different species of raptors.	The Avian and Bat Protection Plan was developed to address the potential issues to both birds and bats. Professionals/experts in wind/wildlife interactions, such as Dr. Thomas Kunz, an internationally renowned bat researcher, and local agencies were involved to ensure that all necessary measures were utilized and were realistic.
15	29	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan fails to document four species that would occur in the region. These species are: California myotis (Myotis californicus), Fringed myotis (Myotis thysanodes), Western Pipistrell (Pipistrellus hesperus), Hoary Bat (Lasiurus cinereus). The hoary bat is mentioned in the EA, but the EA neglects to mention that the Hoary bat is a BLM Species of Special Concern. An EIS will need to provide a complete list of bat species that would occur in the area as well as discern presence and activity levels across the 8,500 acres. In April, 2010, BLM employees informed some of our members that this new mitigation and adaptive management plan "would resolve issues associated with bats." We believe that this was a premature statement.	The plan lists bats identified during two years of acoustic and capture surveys in the project area. Hoary bat is included in plan. Hoary bat is not a BLM species of concern. The Avian and Bat Protection Plan was developed to address the potential issues to both birds and bats. Professionals/experts in wind/wildlife interactions, such as Dr. Thomas Kunz, and local agencies were involved to ensure that all necessary measures were utilized and were realistic.
2	29	BR	19	10	In light of the known impacts of wind turbines to birds and bats alone, siting decisions must be crafted to minimize these impacts rather than exacerbate stresses on raptors and passerines. Understanding of species presence and migratory corridors is an essential component of such an evaluation.	Two years of studies for birds and bats were completed, as well as radar studies by Dr. Sherwin. These studies have illustrated an understanding of species presence and migratory corridors. The alternative development alternative (BLM's selected alternative) includes siting away from high use areas such as water sources, agricultural fields, and raptor nests. The current positioning of the project area was a consideration of where wind resources are tempered by the weight of other resource issues.
17	29	BR	19	10	The Draft Avian and Bat Mitigation and Adaptive Management Plan states: "A curtailment study will be completed during the first year to determine the most effective cut-in speed following methods based on those developed by Arnett et al. (2009) in which they evaluated the effectiveness of increasing cut-in speeds from an initial 4.0 m per second to experimental speeds of 5.0 and 6.5 m/s. These increased cut-in speeds were effective in reducing bat mortality by 53%-87%, with minimal loss of revenue for the WEF (Arnett et al. 2009). No Brazilian free-tailed bats were evaluated in this study; therefore, testing is needed to determine the effectiveness of increased cut-in speed." Because "No Brazilian free-tailed bats were evaluated in the study", you have very little information as to what the future outcome will be.	Given that cut-in speed changes have been successful for other bat species, it is highly likely they will be effective for this species as well. However, the ABPP is an adaptive management plan in which increasing cut-in speeds is just one tool that may be used. The plan was written to evaluate impacts and provide tools and techniques to address those impacts as they occur.
24	29	BR	20	6	Bald and Golden Eagles are common on the project site. Spring Valley is known as a wintering region for bald eagles. How will death of bald eagles be waived under the Bald and Golden Eagle Protection Act? A Section 7 take based on research could not be justified in this case. How many Take permits would be issued for bald eagles? Additionally, the presence of WTGs would increase the risk of nest abandonment in and near the project area. How is this being allowed under the Bald and Golden Eagle Protection Act?	Based on two years of pre-construction data and as disclosed in Section 3.3.5 of the EA, golden eagles were only observed 13 times and bald eagles were only observed once during surveys, with several other incidental observations outside of survey periods. No bald or golden eagle nests or nesting habitat has been recorded within or adjacent to the project area. If avian mortality occurs, enforcement of the MBTA and the Eagle Act are the responsibility of the USFWS. No permits for take of eagles are currently proposed. The ABPP outlines measures to reduce risk to avian species. Additionally, IM No. NV-2010-063, Guidance for the Development of Project-specific Avian and Bat Protection Plans for Renewable Energy Facilities, precludes the issuance of a Notice to Proceed until the USFWS's letter of concurrence for the ABPP is received for the project.
23	29	BR	20	6	We do not believe that the BLM nor the applicant has proven that their project will not remove a significant amount of avian wildlife from the region including raptors, including protected eagles; and passerines, smaller migratory birds many of which are in decline throughout the Americas. Large raptors are the birds that suffer the highest mortality.	Large birds actually make up a small percentage of the overall avian mortality across all wind farms, with several projects contributing an disproportionate amount of the raptor fatalities. In this case, a comprehensive ABPP (Appendix F) has been prepared to address potential mortality and ensure significant losses do not occur.
3	29	BR	20	6	In light of the known impacts of wind turbines to birds and bats alone, siting decisions must be crafted to minimize these impacts rather than exacerbate stresses on raptors and passerines. Understanding of species presence and migratory corridors is an essential component of such an evaluation.	Two years of studies for birds and bats were completed, as well as radar studies by Dr. Sherwin. These studies have illustrated an understanding of species presence and migratory corridors. The alternative development alternative (BLM's selected alternative) includes siting away from high use areas such as water sources, agricultural fields, and raptor nests. The current positioning of the project area was a consideration of where wind resources are tempered by the weight of other resource issues.

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25	29	BR	20	7	As of January 2008 San Gorgonio wind farm near Palm Springs, California consists of 3,218 turbines. Raptors and waterbirds are killed here, but a study by McCrary (1986) evidenced that passerines were also being killed in numbers: "an overall estimate of as many as 6,800 birds killed per year, most of them nocturnal passerine migrants."	The San Gorgonio Wind Farm is an old facility using old technology and closely spaced turbines, with 3,218 turbines providing 615 MW. Spring Valley would contain 75 turbines generating 149 MW; more than 10 times fewer turbines to generate similar power production. It also occurs in a very different area ecologically. Therefore, these facilities cannot be accurately compared. Potential impacts to all birds, including passerines, are described in the EA in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 using the best available data and currently accepted methods.
27	29	BR	21	6	The project will disturb sage grouse habitat. Sage grouse need large undisturbed areas of sagebrush, not cut by roads or fences, to nest and feed in. The impacts of industrial wind farms in sage grouse habitat will involve further fragmentation of the large patches of pristine sagebrush that harbor these birds. There are about 3,643 acres of sage grouse habitat within the project site. The major threat to Greater Sage-Grouse is the continued degradation and destruction of sagebrush habitats across the West. Agriculture has completely eliminated millions of hectares of native shrub-steppe have been stripped of their sagebrush vegetation. Overgrazing and urban development also contribute to the degradation of shrub-steppe habitat.	As described in the EA, the habitat in this area is of low quality and is already severely disturbed and surrounded by transmission lines and roads. The impact of removal of this habitat is fully described in the EA and appropriate mitigation is included in Chapter 6.
28	29	BR	21	9	From the Programmatic Wind EIS: "Avoid, when possible, siting energy developments in breeding habitats. Potential breeding habitat occurs in the project area at low frequencies; however, the project is 2 miles from the closest lek and individuals likely use habitat west of SR 893 and the nearby overhead transmission line, thereby avoiding physical barriers. This is not mitigation, nor avoidance. Off-site mitigation should be considered, such as retiring a grazing allotment in Sage grouse habitat. Fragmentation will greatly increase, and is not mitigated." This has not been followed.	As part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
29	29	BR	22	6	Biologists mapped two burrows of pygmy rabbit (Brachylagus idahoensis) in the northern part (SWCA 2009). These small herbivores require tall dense sagebrush stands to hide from predatory hawks and eagles. At least 3 individuals were seen in 3 separate habitat patches in the project site. About 89 acres of good habitat for this rabbit, and 61 acres of occupied habitat with active burrows were found on the project area. The EA states that it hoped that the Pygmy rabbits will move away, "to avoid mortality associated with daily operations such as crushing by vehicles" Because pygmy rabbits are restricted to sagebrush habitats with deep soils, they have always been rare and patchily distributed across their range. Biologists agree that the main threats to pygmy rabbits across their range are habitats loss and fragmentation caused by conversion of sagebrush rangeland to agriculture, development, including oil and gas production, and wildlife frequency in some areas. If the Proposed Action is selected, relocation of pygmy rabbits by live trapping prior to construction should be considered in consultation with the USFWS and NDOW to avoid direct mortality. This is unacceptable, as the public does not have a chance to review any Pygmy rabbit relocation plan after project approval. How does trapping impact the rabbit? Please reference past trapping studies and give mortality numbers. How will rabbits be prevented from	That mitigation measure is in included in Section 6.4.
30	29	BR	23	6	The wind farm will likely also cause impacts to resident elk, deer, and pronghorn antelope, by noise impacts, habitat fragmentation, and increase human presence. The project will disrupt connectivity for wintering elk and pronghorn antelope. Turbines would be bisected by roads, concrete, electric cables and other disturbances. Wildlife in general would be blocked by the proposed project. Analysis of a seasonal use by these animals and measures to minimize impacts should be included in a full DEIS.	This EA is tiered to the BLM's Programmatic EIS, consistent with the BLM's NEPA handbook and IM 2009-043 on implementing the Wind PEIS. The project area will not be blocked off and wildlife in general will be allowed to move freely through the project area. All impacts to big game, including the mentioned species, are described in Sections 4.2.2.3 and 4.2.3.3 using the best available data and currently accepted methods.
31	29	BR	24	6	No surveys for rare plants were undertaken on the site, only a few casual observations. Parish's phacelia (Phacelia parishii) has the potential to be found on the site, as records of it are found 250 feet from the project boundary. It is found on clay and alkaline soils by the playas and springs. Shadescale spring parsley (Cymopterus basalticus) is state ranked as "critically imperiled." Broad-pod freckled milkvetch (Astragalus lentiginosus v. latus) is state ranked as "imperiled due to rarity or other demonstratable factors." Presence or absence of these and other plants must be detailed in surveys.	Data from NNHP shows Parish phacelia over 4 miles from the current project area. Mitigation for this species, which includes pre-construction surveys, is included in Section 6.4. Two populations of *Astragalus lentiginosus* v. *latus* occur approximately 2.5 and 7.0 miles from the project area; however, this species does not have habitat within the project area.
8	29	BR	26	6	An EIS should also examine the impacts geo-testing would have on soils and burrowing animals. How many decibels will they entail? Would burrowing animals' hearing be harmed?	The BLM's Wind PEIS that this EA is tiered to analyzes those issues. Geo-testing is part of the proposed action and is therefore considered in the analysis for the EA. This EA considers burrowing animals and the impacts from noise in Sections 4.2.2.1, 4.2.2.2, 4.2.3.1, and 4.2.3.2 using best available data and currently acceptable methods.
14	29	BR	29	10	The Avian and Bat Mitigation and Adaptive Management Plan is only in Draft Form. Where is the final document? The several unresolved issues in the document indicate that BLM is negligent in completing these studies.	The final ABPP is included in this final EA. All required studies have been completed.
26	29	BR	30	6	The Spring Valley Wind Project EA is not following the recommendations of the PEIS; these issues must be addressed in a more detailed EIS complete with adequate bird and bat surveys.	All analysis presented in the EA is based on the best available data and is consistent with the BLM NEPA Handbook, the BLM Wind PEIS, and other currently accepted methods. An EIS does not dictate the level of surveys or mitigation necessary to reduce impacts. The EA utilized proven methods as well as additional experimental methods developed by professionals in wind/wildlife interactions to manage possible impacts below significant levels.

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13	29	BR	30	6	The project is approximately 4 miles from Rose Guano Bat Cave. The Programmatic EIS for wind states that caves used by bats should be avoided. In place of this measure, a project-specific Mitigation Measure has been provided in Section 6.4.2 and in the ABPP. The mitigation measure, to avoid known bat caves and migration corridor, is completely being ignored. There appears to be no mitigation.	The project is proposed 4 miles from Rose Guano Bat Cave and was not placed along the ridgelines closer to the cave. The referenced measure to avoid bat hibernacula and migratory routes is disclosed in the EA and it is addressed by presenting a comprehensive bat protection plan (Appendix F) to address the proximity to the cave and migration area, which includes changing the cut-in speed of the turbines as well as turbine shut down during high-use times of the year.
21	29	BR	30	6	The Mortality Threshold fails to explain the reasons that the numbers listed are acceptable thresholds for mortality of species. A final EIS will need to justify these numbers from an ecological perspective.	The thresholds were determined through coordination between the BLM, NDOW, USFWS, and other wildlife professionals/experts. Additionally, the ABPP states that these numbers may be changed based on post-construction monitoring data.
22	29	BR	30	6	All of the mitigation phases are "after the fact". You have not convinced us that any of these mitigation phases will be adequate enough to prevent the mortality.	Both pre-construction and post-construction measures are listed in Chapters 2 and 6 of the EA and the ABPP. Measures included are based on current methods with data that supports their validity. For example, cut-in speed changes have been shown to reduce mortality between 53% and 87%.
20	29	BR	30	6	The EA states: "Carcass removal trials will be completed seasonally as described above in Section 6.2. Different seasonal rates for carcass removal are necessary to address changes in the scavenging throughout the season, as well as over time, as scavengers adapt to a novel food source. Carcasses will be placed as described for searcher efficiency trails. Carcasses will be checked at 1, 2, 3, 4, 5, 6, 7 ,14, 21, and 28 days following placement, or until they are all removed. Separate carcass removal rates will be determined for bats, small birds (passerines), and large birds (raptors). Carcasses used for removal trials will be handled with disposable nitrile gloves or an inverted plastic bag to avoid leaving a scent on the carcasses and interfering with the scavenger removal trial (Arnett et a;. 2009)." This is still in the trial phase. More studies should be conducted before the project is constructed, not after. This data should be included and evaluated in an EIS.	These trials are a necessary part of post-construction monitoring described in the ABPP in order to estimate the actual mortality occurring, not to predict potential mortality. Data from carcass removal trials are not necessary to support additional analysis in the EA.
12	30	BR	20	9	Projects proposed by Federal agencies need to show that they maintain or enhance breeding populations of eagles prior to any permit issuance. Eagle take associated with wind farms has become an issue of national significance due to the quantity of proposed projects. The issue has become cumulative on a national scale.	The ABPP (Appendix F) now includes golden eagle specific mitigation measures to manage for no net loss of eagles.
14	30	BR	20	10	Migratory Bird Treaty Act of 1998, has a permitting clause for the relocation of migratory birds and not an incidental take permit clause. While violations are seldom enforced by the Solicitors office, Federal agencies should do all that is possible to implement and comply with the Act and avoid, mitigate or minimize impacts and seek to design projects that are neutral or beneficial to migratory birds. Migratory bird take associated with wind farms has become an issue of national significance due to the quantity of proposed projects. The issue has become cumulative on a national scale.	A comprehensive ABPP (Appendix F) has been prepared to address potential take of migratory birds. The EA and ABPP use BMPs and mitigation measures to minimize take under the Migratory Bird Treaty Act.
13	30	BR	21	10	Sage grouse were found warranted, but precluded, from listing under the Endangered Species Act in a 2010 DOI decision. Continued species loss and habitat degradation are of great concern due to the warranted for listing finding. The impacts associated with wind farms to sage grouse and their habitat has become an issue of national significance. The issue has become cumulative on a national scale.	Sage grouse are described in Section 3.3.4 and potential impacts are described in Sections 4.3.2.4 and 4.3.3.4 using the best available data and currently accepted methods. Cumulative impacts to sage grouse are described in Section 5.2.
10	30	BR	29	10	While the Avian and Bat Protection Plan appears consistent with the Golden Eagle National Environmental Policy Act and Avian Protection Plan Guidance for Renewable Energy guidance Instruction Memorandum No. 2010 there appears to be numerous contradictions between the body of the EA and the plan. It may have been beneficial to have involved the National Park Service in the development of this document. The birds and bats that use Spring Valley are not limited by political boundaries and utilize lands administer by both GRBA and the BLM for parts of their life histories.	No contradictions between the EA and the plan have been found or were specified in the comment which could be addressed. The BLM met with the NPS on March 23, 2010, at which time there was an opportunity to provide input into the avian and bat plan or ask to participate in further development of the plan.
11	30	BR	30	9	Per the Avian and Bat Protection Plan, the EA appears to disclose that the project will allow 203 direct fatalities of birds (including 2 bald eagles and 2 golden eagles) and up to 192 bats (including state listed species) per year, before any mitigation measures would be implemented. Assuming a 30 year life for the project, the EA should disclose to the public that thousands of birds and bats will be lost form a unit of the National Park system. The park believes that this level of mortality, over the life of the project, constitutes a significant direct impact to wildlife resources that utilize both GRBA as well as Spring Valley. When looking at the other projects as listed above and the high potential for habitat degradation from the SNWA project, there is an obvious potential to significantly impact shared DOI bat and bird populations in the area. The BLM needs to disclose to the public the cumulative impacts to the shared DOI wildlife resources and specifically impacts to wildlife resources on land administered by the National Park Service.	On a large scale, thousands of birds and bats over 30 years is an acceptable loss consistent with current levels as described in the PEIS. It should be noted that thresholds for eagles have been reduced to 1, based on current USFWS status. Also, mitigation and conservation measures will be implemented during construction and operation without any mortality. Additional phased mitigation would be implemented if thresholds are reached. The thresholds were determined through coordination between the BLM, NDOW, USFWS, and other wildlife professionals/experts. Additionally, the ABPP states that these numbers may be changed based on post-construction monitoring data.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
9	32	BR	20	9	Section 7.3, Table 5: Due to the Service's concern surrounding eagles and the recent rules pertaining to take of eagles under the BGEPA, we recommend that the mortality threshold for bald and golden eagles be changed to one eagle instead of two. We are unclear as to the extent of development of any above ground transmission lines. If there will be additional above ground poles and lines installed, these sites should be described and included in the ABPP and facilities should be constructed to Avian Power line Interaction Committee (APLIC 2005) standards to reduce the likelihood of collision and electrocution.	The multiplication factor for these species has been changed to 1 due to their status under the BGEPA, which in turn reduced their mortality threshold to 1. The EA includes a description of the necessary transmission in Section 2.1.1.2.7, which now describes the length of the line and the number of poles. Also, the following has been added to Section 2.1.4.3 of the EA: "All new above ground poles and transmission lines installed will be constructed to Avian Power line Interaction Committee (APLIC 2005) standards to reduce the likelihood of collision and electrocution."
1	32	BR	20	9	On September 11, 2009 (74 FR 43686), the Service set in place rules establishing two new permit types, 1) authorizes take of bald and golden eagles that is associated with, but not the purpose of, the activity; and 2) authorizes purposeful take of eagle nests that pose a threat to human or eagle safety. However, based on best available information, the Service currently has concerns over golden eagle populations. Therefore, until such time that we have additional data show that populations can withstand additional take, of those authorized under the new rule, we will only consider issuance of permits for safety emergencies and other actions that will result in a net reduction in take or a net take of zero for golden eagles. Meaning, that unless it can be demonstrated that take can be offset by avoidance, minimization, or mitigation measures, ultimately resulting in no net loss to the population, a permit will not be issued.	The USFWS does not plan to issue a permit at this time. However, the ABPP (Appendix F) now includes golden eagle specific mitigation measures to ensure no net loss of eagles. The BLM must have a letter of concurrence from the USFWS that the ABPP is acceptable before they can issue notice to proceed.
2	32	BR	20	9	Section 2.1.4.3, Resource Conservation Measures: The EA states that prior to the onset of the raptor breeding season, raptor nest surveys will be preformed to identify active nests within 0.5 mile of a turbine. The Service would appreciate additional clarification on this Conservation Measure, namely if the start date on this activity is sufficiently early to capture all species and additionally once searches commence how frequently will they be performed to ensure species or individuals that may nest later in the season are not overlooked. We suggest contacting the Great Basin Bird Observatory or other regional experts in the NDOW to delineate the specific dates associated with this Conservation Measure. Further, based on the species known to nest in proximity to this project, we recommend nest searches be extended to 1 mile of the project boundary, but up to 10 miles for golden eagles.	The ABPP and EA now state, "Nest surveys will be conducted prior to the nesting season (approximately March 15 to July 30) and once each month during the nesting season during the first three years and every fifth year after that. Aerial or ground based raptor nest surveys will be conducted within the entire project area and a 1-mile buffer for raptors (BLM 2007), except for bald and golden eagles. Bald and golden eagle search distances will be determined through consultation with the USFWS10 miles from the project area based on current USFWS guidance. The complete 10-mile search area will be limited to once at the beginning of the golden eagle nesting season with monthly follow-up surveys only being completed for identified golden eagle or potential golden eagle nests. If aerial nest surveys are conducted, ground-based follow-up surveys will be conducted for all active nests identified. Ground-based passerine nest surveys will be conducted within the project area and a 0.5-mile buffer from all turbines." Nest searches have been adjusted per your recommendation.
3	32	BR	20	9	Section 3.2.6, Birds of Prey and Vultures: With respect to nesting golden eagles, you reference Floyd et al. (2007), when stating the closest known breeding pair occurs 10 to 15 miles away. We are not clear how this measurement was derived from this source. Further, we suggest contacting the NDOW for data pertaining to known golden eagle nest sites in vicinity of this project. Our inquiries into this data revealed there are at least 4 nest sites within 13 miles of the project boundary, at approximately 4, 8, 12.5, and 13 miles, and likely representing three territories. It is not known if these sites are currently active or if they represent the complete extent of nest sites.	This section has been updated with nest data from NDOW. The section now states, Nesting raptor data provided by Nevada Department of Wildlife (NDOW) shows one known nest approximately 4 miles from the project area and another 8 miles away. However, these nests have not been checked for activity in almost 30 years. During surveys for the Atlas of the Breeding Birds of Nevada from 1997-2000, Floyd et al. (2007) found the closest breeding pair of golden eagles in the Schell Creek Range, northwest of the project area. This nest appears to be more than 10 miles away from the project area, but the exact location is unknown.
4	32	BR	20	9	Section 3.3.5, Birds of Prey and Vultures: This section describes golden eagle occurrence within the project area during several different survey efforts. In reviewing the Spring Valley Wind Power Generation Facility Final Preconstruction Survey Results Report (SWCA 2009), there appears to be an additional dataset (General Use Surveys, Section 2.2.3) that captured winter use. This dataset may be informative and the Service would appreciate viewing these results. Further, we are aware that the NDOW performs winter raptor surveys in the Spring Valley and this data may better inform our concern surrounding the eagle resource in the area. We suggest that this data be incorporated in to the final document.	The winter data for all species are summarized in the SWCA 2009 report for general use surveys. Additionally, following submittal of this comment, SWCA provided the USFWS with a summary of golden eagle data, including winter data. Lastly, NDOW nest data were used to better describe golden eagle use in the area. NDOW raptor survey is not currently available.
5	32	BR	20	9	Section 6.3, Ely RMP/FEIS-Adopted Mitigation Measures: Table 6.1-1 identifies mitigation measures that will be adopted as part of this proposed action. Under the subheading 5.9 Ecological Resources-Gallinaceous Birds it states that the mitigation measure pertaining to compensatory habitat restoration for impacted sagebrush habitat is not applicable due to poor quality of habitat and very low use. We do believe the rational for this waiver has been sufficiently described and submit that this mitigation measure should be incorporated.	As part of the proposed project, the project proponent has volunteered to donate $500,000 to enhance sagebrush habitat that supports species such as the greater sage-grouse. Funds would be deposited into NDOW's Non-Executive Account and marked specifically for purposes of sagebrush restoration efforts, which could include permitting, equipment and seed purchase, labor, and other necessities for restoration.
13	32	BR	30	6	We consider the approach described in the ABPP to be progressive and represents substantial creative effort on the part of numerous people and entities. While this approach has considerable merit, ultimately, we should strive to mitigate the total impact incurred by the project and we will truly not know this until after construction. Our questions is how to handle this uncertainty. We suggest that additional thought be given to worst case scenarios and that this "catastrophe clause" be incorporated into the ABPP. While we do not offer suggestions as to its form and content we would gladly discuss the terms of this clause as we go forward to finalize this agreement.	The ABPP has been written to be adaptive and address the "unknown" impacts as well as those that are most possible. The following statement is in the last paragraph of Section 7.1 to address this concern: "If thresholds are still exceeded following implementation of all mitigation measures for all phases, the BLM would meet with the TAC, other appropriate land and wildlife management agency representatives, and the proponent to determine necessary management strategies. "

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
10	32	BR	30	7	Section 7.4.1 - 7.4.5, Turbine Curtailment: We are assuming that the number of hours delineated under this mitigation measure is tied to the cut-in speed experiment identified in Section 5.2. Meaning that if no statistical difference in cut-in speed is detected during the experiment and 3.0 m/s is adopted this mitigation measures is moot. Alternatively, if it is shown that a 5.0 m/s cut-in speed significantly reduces mortality and is adopted for the duration of the project, this cut-in speed will be implemented for the 62 day "highest use" or "peak activity" period identified in Section 5.2 and the mitigation measure identified in this section will be in addition to the 62 day period. We would appreciate validation of this inquiry.	This is correct regarding implementation of cut-in speed based on experimental findings and that phased mitigation is in addition to the initial 62-day period.
8	32	BR	30	9	Section 6.5, Nest Surveys: The banding research proposed in this section may have some interesting merit. For example, this type of mark-recapture study could investigate potential changes in local populations due to construction. As proposed, however, it does not appear to have been fully developed. It would be best to simply make assumptions as to residency of individuals based on time of year and species. To validate the season and species assumptions, would require a substantially large number of banded individuals and several years worth of data before conclusions could be drawn as to which group of individuals are impacted most and why.	This section has been removed from the ABPP.
11	32	BR	30	9	Section 7.4.1 - 7.4.5, Direct Mitigation: The Service suggests an additional potential direct mitigation measure may be to retrofit existing power poles in the area, to APLIC standards, to prevent or reduce potential mortality through collision or electrocution, upon owner approval. The extent of this mitigation could be adjusted, depending on the mitigation phase, and the specific starting point or increments could be discussed and would likely depend on the cost and expected efficacy associated with this activity.	This measure has been added to the ABPP as an initial mitigation, to the extent that owners will allow it.
12	32	BR	30	9	Section 7.4.1 - 7.4.5, Indirect Mitigation: The Service has currently adopted a position, based on the best available information, of "no net loss" to regional golden eagle populations. Given specific methods for mitigating mortality to eagles have not been established and proven, we submit that monetary compensation (in various forms such as offsite habitat restoration, outreach, wildlife rehabilitee support, power line retrofit) may be the only effective way of offsetting mortality caused on site. This being the case, and based on golden eagle ecology (long lived, wide ranging, low reproducing), we suggest that the allocated monetary amounts delineated in the phased indirect mitigation sections (7.4.1 - 7.4.5) may be insufficient to offset impacts and recommend that a method for defining these amounts be established through coordination with the Service's Migratory Birds Division prior to adopting these figures. We suggest that part of this discussion may be informed by a Habitat Equivalency Analysis, a process that the Service recommends as part of an ABPP.	A section on golden eagle-specific mitigation measures, including completion of a HEA and monetary donations, has been included in Section 7.3.1 of the ABPP.
6	32	BR	30	10	Section 5.2, Turbine Curtailment: The Service would recommend consulting a statistician with respect to the details associated with the curtailment experimental study design. We have resources that can be extended to this effort or at least be used to review a proposed experimental design. Specifically, I would ensure that the number of turbines used in the experimental design be sufficiently large. The number of turbines necessary depends on several unknowns such as the number of mortalities that occur and the variation in these mortalities due to other confounding factors. This being the case it may be necessary to repeat this experiment appears critical and ripe for criticism as it will inform the operations of the facility for the duration of the project. I would strongly recommend that it be performed by a third party researcher with the commitment to publish the results in a peer reviewed arena.	The current design was based on Dr. Thomas Kunz's review of the original curtailment design and recommendation to increase the number of turbines surveyed for more statistical power. Further, as stated in the EA, data analysis will be done using the most currently accepted statistical methods. Additionally, as a TAC member, the USFWS may review methods and recommend changes throughout the process. Lastly, it is the intention of the proponent to have a researcher publish data from these studies.
7	32	BR	30	10	Section 6.1, Mortality Surveys: How often mortality searches will be preformed will ideally be informed by the carcass removal trials. In the absence of this data or if this data is not sufficient to inform this decision, we recommend that mortality surveys be performed on a weekly basis instead of the every other week basis identified.	The last sentence of Section 6.1 states, "survey intervals may need to be adjusted based on the findings for these studies [mortality and scavenger rate] in order to ensure precise correction factors, as described by Huso (2008)." This statement addresses the potential need to increase survey frequency.
1	35	BR	19	10	The EA, not surprisingly, overlooked information on this species [Hoary bat]. The below info comes from the California Desert Renewable Energy Conservation Plan. Even though the deadline passed, BLM should not be excluding information that someone may be following up on in a potentially more official capacity. Hoary bat (Lasiurus cinereus). Although this species is widely distributed and unlikely to be listed as threatened or endangered in the near future, hoary bats are the most frequently killed species at wind energy development in North America (Arnett et al. 2008) and have been recorded as fatalities at wind energy facilities within the DRECP (Chatfield et al. 2009). Given the cumulative impacts of massive expansion of utility-scale wind energy development in the United States, combined with low reproductive rates of bats, there is some potential for hoary bats to be added to one or more special status lists within the next 30-50 years.	Section 3.2.8 states that hoary bats are one of the most documented bat mortalities at wind farms in the United States. The potential impacts to hoary bats are described in Section 4.2.2.7.2. Hoary bats are also discussed in the ABPP in Section 2.2. Both of these include references to Arnett et al. 2008.

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21	14	CR	4	9	In 2006, Highway 50 in White Pine County, Nevada and Millard County, Utah was designated by Congress as the Great Basin National Heritage Route. The larger area of these counties and Native American Tribal lands is recognized as the Great Basin National Heritage Area. The Great Basin National Heritage Area is a geographical region encompassing White Pine County, Nevada and Millard County, Utah and adjacent Indian reservations that contain nationally significant archaeological, historical, cultural, natural and scenic features that are emblematic of the entire Great Basin Area.	A description of the Great Basin National Heritage Route has been added to Section 3.6 of the Final EA.
10	16	CR	32	9	The FONSI downplays the context of this project by stating that it is in a sparsely inhabited area and that the primary economic activities are ranching and mining. It neglects to recognize that Spring Valley is a culturally significant area for regional tribes of Native Americans, and that the proposed project borders and may encompass a site where Native Americans were massacred by the U.S. Army during the Goshute "War".	The context section of the FONSI has been revised to describe the proposed project's proximity to the Swamp Cedar ACECs and the cultural resources present.
19	16	CR	32	10	In addition, the Goshute and other native tribes indigenous to the region view the area as culturally and religiously significant and are submitted their own comments and ethnographic study to support their belief.	As of 9/24/2010 the BLM had not received any ethnographic studies from Native American Tribes regarding this project. All comments submitted by Native American Tribes will be addressed though continuing consultation with the BLM.
14	17	CR	4	6	There will be 28.7 miles of new roads constructed within the project area. These roads will provide access to the cultural resources that are located in the area. This constitutes an effect under the National Historic Preservation Act that cannot be mitigated by avoidance. The cultural resource plan addresses only those effects during construction, operation and maintenance by the facilities crew themselves.	Section 4.6.1.1 of the Preliminary EA summarizes the Wind PEIS and states: "Other indirect impacts include increased access to the area, which could result in looting, vandalism, and inadvertent destruction of cultural resources."
3	19	CR	32	10	All possible measures must be taken to ensure that sacred burial grounds of local Native American Tribes are not affected before the project is allowed to move forward. While the current study mentions outreach to a number of tribes, it does not include the comments received as a result of that outreach, and mentions that meetings with some of the Tribes were still pending. This issue should be completely reviewed and resolved before construction begins.	The BLM is requiring a cultural resource monitor during all ground-disturbing activities. Appendix E : Cultural Resources Monitoring and Discovery Plan of the Preliminary EA outlines to the procedures that will be required to protect all cultural resources that are discovered and ensure compliance with all applicable laws. The BLM respects the concerns of the tribes regarding the final resting place of their ancestors and will take all reasonable safeguards to protect the graves. The BLM will attend or arrange any meeting regarding this project requested by the tribes.
18	27	CR	4	9	Moreover, these caves and their associated species are important cultural resources to our people, and any disturbances to those is of serious concern for the CTGR.	Sections 4.6 and 4.7 of the Final EA have been revised to include a description of the resources present, the types of inventories conducted, and the Tribal Consultation completed without breaking confidentiality in order to better describe the potential direct, indirect, and cumulative impacts to those resources, including the Rose Guano Cave.
3	27	CR	4	9	The CTGR is concerned that the SVWE Draft EA does not carefully and comprehensively describe potential impacts to cultural resources. Under Section 3.6 and 3.7 of the Draft EA, the CTGR suggests that the BLM list and describe each of the cultural resources similar to what has been drafted under Sections 3.2 and 3.3. The CTGR is not recommending that cultural sites and features have their associated potential adverse impacts appropriately delineated, while maintaining the confidentially of those resources as directed by Executive Order 13007. The Class III cultural resource inventory and ethnographic investigations (see Lahren et al. 2009 report) identify that at least ten cultural sites within close proximity to the SVWEF (and certainly within the 11-mile radius delineated for the visual impact analysis) are likely to be impacted from the proposed SVWE Project; however, the Draft EA generalizes these cultural sites and only calls attention to the Swamp Cedar ACEC.	Cultural Resources/archaeology is analyzed in a separate report (Villagren et al. 2009). Cultural resource reports are kept confidential to provide maximum protection to the resource. All cultural resource sites eligible for the National Register of Historic Places will be avoided. Therefore, there will be no impacts to known eligible cultural resource sites located within the project area. This assures the complet confidentiality in accordance with the *Archaeological Resources Protection Act of 1979 as amended.* The BLM encourages the Tribes to enter into an information sharing agreement which will allow access to these reports while maintaining the current level of protection. The ethnographic report reference is a draft report. There is a 5-mile radius for visual impact to historic structures only. Prehistoric sites currently do not require VRM. The BLM did discuss the potential visual impacts with the tribal representatives during the field meeting on July 17, 2010, to the proposed Swamp Cedar TCP and the consensus was that WTGs would only be visible on the eastern boundary of the proposed TCP and therefore minimal.
6	27	CR	4	9	The Draft EA fails to appropriately describe tribal territories and resources, provide a misleading representation that downplays the important ties that Indian tribes have to the proposed project area and the resources potentially impacted by the proposed SVWE Project. Our tribe, among others, is inextricably linked to the entire Spring Valley region, and especially to particular places within the region, the life-supporting water resources within the region, native plants and animals that our people hold sacred or utilize for hunting, gathering and medicinal purposes, and the spirits found throughout the landscape and particularly at water resource locations, ceremonial sites, and massacre sites. The proposed SVWE Project stands to directly, indirectly, and cumulatively impact all of these cultural resources.	Sections 4.6 and 4.7 of the Final EA have been revised to include a description of the resources present, the inventory conducted, and the Tribal Consultation completed without breaking confidentiality in order to better describe the potential direct, indirect, and cumulative impacts to those resources.
5	27	CR	4	9	The Draft EA on Page 61 (Section 3.7.1) incorrectly refers to the Swamp Cedars Massacre as a "battle". The terms "battle" and "massacre" do not carry the same meaning, nor have similar definitions. The CTGR and ethnographic experts and numerous authoritative literature sources provide several accounts of massacres at this site. Although at least one massacre may have been associated with the Goshute/Overland War, it incorrect to refer to the massacre as a battle. Thus, the terminology and descriptions are insufficient and/or incorrect and must be changed to accurately reflect the best available information.	The BLM apologizes for the mistake; the terminology in the Final EA has been revised to refer to "massacres" and not to "battles" or "war."

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4	27	CR	33	9	While the Swamp Cedars ACEC and Massacre Site is certainly eligible under the National Register of Historic Places (NRHP), the CTGR feels that several additional sites should be eligible as Historic Properties under NRHP. Specifically, those sites include Village 11, Village 12, and the two festival sites near Village 12 (see Lahren et el. 2009, Figure 9). Eligibility under NRHP requires that a site is greater than 50 years old, possesses definable boundaries, and retains integrity and relation to a cultural group. Other criteria can be found under Parker and King (1990) and King (2008) that identify these sites as eligible under NRHP as Historic Places. The National Historic Preservation Act (NHPA) requires federal agencies to take into consideration actions that could adversely affect historic properties eligible for listing under NRHP. With this in mind, the BLM must consider how all of these cultural resources/sites are likely to be affected by the proposed SVWE Project. Case law interpreting NEPA and its regulations has repeatedly demonstrated that lead agencies must take a hard look at impacts, even in EA's tiered to Programmatic EIS's (e.g., Alaska Wilderness League v. Kempthorne (548 F.3d 815, 826, 9th Cir. 2008)). It is clear that this Draft EA does not take a hard look at prospective impacts for the entirety of cultural	The exact locations of Village 11, Village 12, and the two festival sites are unknown. A Class III cultural resource inventory conducted of the area did not locate these specific sites. The Class III inventory was conducted for the entire project area including areas in between the proposed WTG locations. All known sites eligible for the National Register of Historic Places will be avoided. Cultural resource monitors will be present for all project-related ground-disturbing activities.
33	27	CR	32	7	Similarly, extraction of 5-10 million gallons of groundwater from the Cleveland Ranch in Spring Valley may have impacts on surrounding wetlands and spring water outputs. However, the Draft EA wrongfully assumes no potential impact on culturally and spiritually significant sites. The CTGR considers any change in spring water discharge and any change in the surrounding landscape, vegetation, wildlife, and spiritual significance to have impacted the integrity of the traditional cultural property. An such changes will disproportionately impact our people and our cultural resources, and thus, must be given consideration under the NEPA process. Anything less is in violation of NEPA, NHPA, and their operating regulations and case law has repeatedly affirmed that NEPA documents must disclose potentially significant impacts.	Water proposed for use in construction will come from a well which taps into a deep aquifer. This will not directly or adversely affect water that supports spring water discharge and will not impact on culturally or spiritually significant sites such as the Swamp Cedars. These areas of cultural and spiritual significance are fed by perched shallow aquifers that are influenced by annual fluctuation in local precipitation within the watershed.
9	30	CR	4	9	The EA does not disclose the potential impacts to the Great Basin National Heritage Area nor does it appear that they were consulted in the development of the EA. The Great Basin National Heritage Area contains nationally significant cultural, natural and scenic features that are emblematic of the entire Great Basin Area. National Heritage Areas are designated by Congress in recognition of the contributions they offer in making up the unique fabric of our country. For example, Wheeler Park is the historic location of 1870's geodetic survey and mapping of the West and is of national significance found both within a National Park and National Heritage Area. The addition of this wind farm and future projects could impair the historic integrity of the site, yet is not disclosed.	A description of the Great Basin National Heritage Route has been added to Section 3.6 of the Final EA.
2	34	CR	4	9	3.7.1 Overview of Ethnographic History of the Area: The BLM needs to be more specific in regard to how many massacres happened in the area-whether to ethnographic research or through literature research. "Shoshone families once inhabited the area, prior to the battle with U.S. soldiers..." Shoshone families continued to live in the area and still used the Swamp Cedars after the battle. The Duckwater Tribe knows that through other massacres happened in the vicinity. The loss of "one soldier and one horse" does not describe a battle, but a massacre, especially since the Shoshone/Goshute lost 23 people.	The BLM apologizes for the mistake; the terminology in the Final EA has been revised to refer to "massacres" and not to "battles" or "war."
1	34	CR	32	9	3.7 Native American Religious Concerns: The text mentions boundaries may be defined, the Duckwater Tribe has defined a boundary, in regard to the Swamp Cedars.	The text in the EA has Been changed from boundaries "may" to "have" been defined in regards to the proposed TCP. The write up regarding the TCP is currently being worked.
5	34	CR	32	9	4.7 Native American Concerns: This topic is listed, but it does not list any Native American concerns, rather foreseeable impact. What is the mitigation step the BLM is going to take to respond to the concerns of the Duckwater Tribe as well as the other Tribes?	Sections 4.6 and 4.7 of the Final EA have been revised to include a more detailed description of the resources present, the types of inventories conducted, and the Tribal Consultation completed without breaking confidentiality in order to better describe the potential direct, indirect, and cumulative impacts to those resources. The BLM will respond directly through letters to those tribes that provided comments and address each of their concerns during continuing consultation.
7	34	CR	32	9	5.6 Native American Concerns: Again, the BLM states they have completed the Tribal Consultation, but does not list the types of concerns.	Section 4.7 of the Final EA has been revised to include a description of the concerns, resources present, types of inventoruies conducted, and the Tribal Consultation completed without breaking confidentiality in order to better describe the potential direct, indirect, and cumulative impacts to those resources.
8	34	CR	34	6	6.2 Programmatic Environmental Impact State Adopted Mitigation Measures: There is no mention to mitigation steps to address Native American concerns.	The mitigation measures identified in Section 5.12 and Table 6.1-1 of the Preliminary EA include a mitigation for impacts to Native American concerns.
12	34	CR	32	10	7.4 Summary of Tribal Consultation. The BLM has not conducted any meeting with the Tribe to address the Tribes concerns, in order to stay consistent with this; The BLM should follow up with meetings with the Duckwater Tribe.	The BLM has not yet met with the Duckwater Shoshone Tribe in regard to the proposed Spring Valley Wind Energy Facility Project. If the Duckwater Shoshone Tribe wishes to request a meeting with the BLM regarding this project, or in regard to any other project or concern, they need to contact BLM tribal coordinator Elvis Wall at (775) 289-1858, or by email at Elvis_Wall@blm@blm.gov to arrange for a meeting, or to request a BLM representative to attend a Tribal Council meeting.
6	34	CR	34	6	4.7.1 Programmatic Environmental Impact Statement Impacts Summary: The BLM states in this heading the Native American concerns are addressed in 6.2, but it does not mention any mitigation measures in 6.2. This omission had to be addressed. However in Table 6.6.6 PEIS Mitigation Rationale, Cultural Resources is listed- where are the Native American concerns? The BLM need to stay consistent in regard to their EA.	The mitigation measures identified in Section 5.12 andTable 6.1-1 of the Preliminary EA include a mitigation for impacts to Native American concerns.

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3	3	ECON	5	6	We chose Spring Valley, after many years of searching, to develop property for sale and our future home site. We had sub divided the property for residential lots prior to any knowledge of wind farm projects. We have had numerous parties interested in lots we have for sale until disclosing to them that there will be a wind project just north of the parcels, at that point, their interest quickly fades. We have invested our life savings in purchasing and development of this property and we believe that present and future marketable value and living conditions will be severely impacted.	Section 4.13.2.2 of the Preliminary EA states that there would be changes to the local economy as a result of the Proposed Action. It further states that a study prepared for the DOE in 2009 provides support that the presence of WTGs has no impact on property values.
3	7	ECON	5	6	The County anticipates economic benefit from the construction and operation of the proposed project through employment opportunities, new job generation, business activities, and tax revenues.	Thank you for your comment.
4	7	ECON	5	7	Pattern Energy has applied for Nevada's new Renewable Energy Tax Abatements which will abate sales and use as well as much of the real and personal property tax revenue the County would ordinarily realize from a project of this size. We are currently working with the company and they have agreed that they will enter into a Development Agreement with us to provide funding needed to address the impacts including emergency services, law enforcement, and public works if the abatements are approved by the Nevada Office of Energy.	Thank you for your comment.
2	8	ECON	5	6	This project also would increase substantially the tax base for our County with money going to support County and City Government, Schools, Hospital and other services to the citizens of the County. The project will produce clean, renewable energy to the citizens of the State of Nevada. It will produce enough energy to provide power for 40,000 homes.	Thank you for your comment.
1	8	ECON	5	6	We feel the Spring Valley Wind Project will bring badly needed jobs to White Pine County. We have been told the project would require up to 225 workers during construction, with 10 to 15 permanent jobs in the County after completion.	Thank you for your comment.
2	22	ECON	5	7	It takes three trucks just to haul one of the blades of the towers. The construction cost is going to be monumental. The wind turbines require constant maintenance, and upkeep is costly. The brushes continually need to be replaced.	Thank you for your comment.
4	22	ECON	5	8	Will White Pine County residents receive some compensation for giving up much sporting area for this project?? Nevada has been taken advantage of by Mining, and the gaming industry, so wouldn't it be great to implement something for Nevada or White Pine citizens like the Alaska oil royalties?	The project area has limited recreational or "sporting" value. Additionally, the BLM does not have the authority to implement a royalties program for the residents of White Pine County.
1	25	ECON	5	6	The Spring Valley Wind, LLC-proposed Spring Valley Wind Project would provide a much needed boost to economic development that will positively affect the White Pine County School District in terms of revenue and student enrollment. In addition, the project will help diversify the local economy that has been historically and predominantly dependent upon mining which has been an intermittent industry.	Thank you for your comment.
49	14	FIRE	6	6	Industrial wind turbines often experience malfunctions. Oils and lubricants will often for hours during chemical fires. Lighting strikes and electrical malfunctions do happen. The applicant should have a wild fire plan and that should be discussed in an EA.	The EA tiers to the analysis completed in the BLM Wind PEIS. Mitigations from the PEIS would be implemented as described in Table 6.1-1 of the Preliminary EA and include conducting safety assessments and the means to mitigate safety issues, including a plan to address the risk of wildfire.
12	26	FIRE	6	6	An accidental fire associated with the wind farm construction or operation would be devastating, and likely irreversible. It would occur on top of the disturbance this facility will cause. Such effects remain unanalyzed.	Fires occur regularly throughout the Great Basin. Mitigations as described in Table 6.1-1 of the Preliminary EA include conducting safety assessments and the means to mitigate them such as a fire control plan.
36	29	FIRE	6	6	Industrial wind turbines often experience malfunctions. Oils and lubricants will often for hours during chemical fires. Lighting strikes and electrical malfunctions do happen. The applicant should have a wild fire plan and that should be discussed in an EIS.	The EA tiers to the analysis completed in the BLM Wind PEIS. Mitigations from the PEIS would be implemented as described in Table 6.1-1 of the Preliminary EA and include conducting safety assessments and the means to mitigate safety issues.
6	16	HUM	7	9	The FONSI downplays the context of this project by stating that it is in a sparsely inhabited area and that the primary economic activities are ranching and mining. It neglects to mention that the project lies aside a major U.S. highway that is a significant tourist route.	The context section of the FONSI has been revised to describe the proposed project's proximity to U.S. Highway 50.
2	20	HUM	7	6	We run the risk of a huge surge in vector-borne diseases if we let mosquitoes get out of control. Malaria, Dengue Fever, West Nile, Yellow Fever-as someone who has traveled where these diseases are prevalent, I assure you that these are no joke!! They kill millions of people every year and we have them under control here, but mostly because we have mosquitoes under control-that could easily change and quickly.	The Avian and Bat Protection Plan would be implemented to mitigate the impacts to bats from the Spring Valley Wind Energy Facility. The claims that there would be an increased risk of vector-borne diseases from the proposed project is unsubstantiated.
6	21	HUM	7	7	Large wind turbines are hazardous to small aircraft.	The project has been reviewed and accepted by the Federal Aviation Administration.
2	21	HUM	7	7	Large wind turbines are unsafe.	A safety plan will be developed and implemented as part of the Construction, Operation, and Maintenance (COM) Plan.
8	21	HUM	7	7	Large wind turbines can cause "blade glint".	Glint is mitigated in modern Wind Turbine Generators by using low reflectivity materials in their construction.
7	21	HUM	7	7	Large wind turbines can cause "shadow flicker".	WTGS do cause "shadow flicker," however, because the Spring Valley WTGs are not located adjacent to residences, occupied buildings, or roadways, the effects of shadow flicker are minimized.

Table H.4. Comment Response Table

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10	21	HUM	7	7	Large wind turbines can cause harmonic ground vibration over many square miles.	Although it is possible for Wind Turbine Generators (WTG) to cause ground vibration, for a harmonic response from the ground to occur would require a frequency range similar to an earthquake. The WTGs proposed for Spring Valley would operate with rotational speeds of 10 to 20 rpm; i.e., the rotor makes a complete cycle every 3 to 6 seconds and a blade passes the tower every 1 to 2 seconds which is more than double the normal frequency of an earthquake. Additionally, the WTGs and foundations will be designed to ensure that the blade passing frequencies are not close to the natural (harmonic) frequencies of the structures and thus the tower and foundation will act as dampers with respect to the blade passing frequency, further reducing the energy transferred to the soil.
11	21	HUM	7	7	Nearby residents may suffer loss of sleep and nausea called "wind turbine syndrome".	Wind turbines have been present in the United States for 30 years. Today there are more than 35,000 operating wind turbines in the United States and to date there is no credible scientific evidence that they have created any adverse health effects. Colby et al. (2009) states, "There is no credible scientific evidence that low levels of wind turbine sound at 1 to 2 Hz will directly affect the vestibular system. In fact, it is likely that the sound will be lost in the natural infrasonic background sound of the body."
30	27	HUM	7	7	Given the close proximity of the project site to important cultural resources and sites that are used by members of our tribes, the BLM should provide the CTGE with the comprehensive list of hazardous materials that would be used, stored, transported or associated with any sort of monitoring, testing, construction, operation, and decommissioning of the SVWEF (see Table 6.1-1). Because our people use the region for its spiritual, botanical, and wildlife resources, the CTGR must have the opportunity review and comment on any hazardous material management plan, waste management plan, and pest management plan for energy facility. Moreover, the CTGR must be notified in the event of any hazardous or waste material spill on or near the project site.	This would be done as part of the Construction, Operation, and Maintenance (COM) plan.
10	34	HUM	7	6	The BLM has not addressed Environmental Justice throughout the EA. The EJ is requires to be addressed in EIS's and EA's	Environmental Justice is addressed in Table 3.1-1 of the Preliminary EA. No minority or low-income groups would be disproportionately affected by health or environmental effects of the proposed project.
1	13	LR	8	8	I don't think the state of Nevada has a comprehensive plan. It's just put the huge turbines wherever we can place them.	No commercial wind energy facilities are currently in operation in the state of Nevada.
18	28	LR	8	9	SNWA's existing and proposed ROWs located within and adjacent to the SVW Project area are identified in the Land Use affected environment chapter. However the environmental consequences chapter provides no detailed discussion regarding whether the SVW Projects will be compatible with SNWA's GWD Project. Draft EA, at 126. BLM should clarify guaranteed access to SNWA existing ROW N-84216 (piezometers).	Section 4.11.2.1.2 of the Preliminary EA states: "…there would be no impacts to utility corridors and other existing ROWs from implementing the proposed action." The following has been added to Sections 4.11.2.1.2 and 4.11.3.1.2 of the Final EA for clarification: "including SNWA ROW N-84216 (piezometers)."
20	31	LR	8	6	The proximity of Great Basin National Park was not adequately evaluated.	Impacts to Great Basin National Park are described in Sections 4.8 - Visual Resources, 4.9 - Noise, and 4.12 - Recreation.
6	31	LR	8	8	Spring Valley Wind attempts to locate a massive facility within view and close proximity of Great Basin based on the park's remoteness from urban areas but remoteness should not be a consideration that supports locating a WGF. Instead, Great Basin's remoteness should be a reason to not site an industrial complex in the area. Increasingly, with urban sprawl and the frenzied pace of contemporary life, remote areas become increasingly important. Visitors to Great Basin attest to the "get-away" attributes of the park.	The proposed location for the Spring Valley Wind Energy Facility is not based on the remoteness of the area, but on the existing wind resource (which is identified in the BLM Ely RMP), and the existing access to power distribution.
1	33	LR	8	7	The Department of Transportation has a number of Material Site right of ways near the proposed Spring Valley Wind Generating Facility. These material sites are along or near SR893 and US6/50. Most of the sites are not impacted by the Generating Facilities. However, one of these material site right of way, NEV055079, is adjacent to one of the proposed gravel sources for construction of the Generating Facility. NEV055079 is located in: W 1/2 SE1/4, Section 04, T14N R67E.	Thank you for your comment.
1	2	NEPA	10	7	The EA is no where to be found on the web. Just a bunch or endless circles. Very typical. Where is it?	The preliminary EA is available on the web at: http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_programs/energy/spring_valley_wind.html. The EA was available at this location and directly from the BLM throughout the comment period (7/19/2010 - 8/18/2010). Also, hard copies were made available to those that requested one.
1	3	NEPA	41	6	We have requested in past communications that the wind turbines situated on the southeast corner of the project be moved to alternate locations to help minimize the effects to our property and future living conditions. After viewing the new revised alternative wind turbine layout map, there have been no changes in regards to the southeast turbines.	The turbine is 0.5 mile from the WTG facilities to the property line, and 1 mile from the WTG facilities to the nearest structure on the property. The WTGs have been located to utilize the most consistent wind resource, while limiting potential resource impacts as well as to meet the minimum setback requirements from the requested ROW boundary.
1	4	NEPA	40	6	I demand that Ely BLM require Spring Valley wind to prepare an Environmental Impact Statement for this project. An EA is unacceptable for a project of this size in such a sensitive area.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment is an appropriate document as it tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.

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8	4	NEPA	40	6	There is every reason to prepare an EIS for this project. These impacts are potentially significant. You are failing in your duty as stewards of the public domain if you do not require full environmental documentation of this project.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment is an appropriate document as it tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
1	6	NEPA	10	7	Spring Valley Wind, LLC, can show that the permitting process here is fair and manageable, something that can not be said about all locations. Geothermal energy, like gold, is where you find it. But the studies of wind patterns have shown that Spring Valley Wind can be a success. We hardily endorse its approval.	Thank you for your comment.
1	7	NEPA	46	7	The Commission has reviewed the revised Preliminary Environmental Assessment and we find that the document and appendices adequately analyze the potential impacts of the proposed project. We applaud Pattern Energy for its willingness to conduct additional study on bat and avian populations and behavior and to work with US Fish and Wildlife Service and the Nevada Department of Wildlife to address concerns about wildlife and especially Sage Grouse habitat. The studies completed for the Environmental Assessment not only provide a thorough understanding of the potential impacts of the proposed project, they provide information that helps to better understand the natural, cultural, and historical resources in the surrounding area.	Thank you for your comment.
2	7	NEPA	48	7	The County Commission believes that the mitigation and conservation measures listing in Sections 2.2.4, 6.2, and 6.3 of the EA; the relevant Best Management Practices listed in the Wind Energy Development Programmatic Environmental Impact Statement and the Ely Proposed Resource Management Plan/Final Environmental Impact Statement which are incorporated into the document the Restoration and Weed Management Plan; the additional survey to be conducted by an approved botanist to identify and survey habitat of sensitive species within 100 feet of the construction disturbance; and the additional plans and measures to be included in the Construction, Operation and Maintenance Plan will provide adequate protection for the resources in North Spring Valley.	Thank you for your comment.
1	10	NEPA	40	6	This EA is over 161 pages long, in part because it repeats much general information from a previously published Programmatic Environmental Impact Statement (PEIS) on wind energy projects. Specific information about public lands and resources impacted by the proposed project is sparse and difficult to find. NEPA does not allow EA's to be a substitute for a full EIS when a project of this scale is proposed on public lands. NEPA and Council of Environmental Quality implementing rules and regulations do not allow EAs of this size.	The analysis in the SVWEF EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. In addition, a case discussed by CBD, Sierra Club v. Marsh, specifically states that it will "not give conclusive weight, one way or the other, to the simple facts of EA length, complexity, and controversy," but will focus instead on "the lawfulness of the agencies' finding that the project will have no significant impact on the environment."
4	10	NEPA	40	6	We strongly urge the BLM to conduct a full and open EIS process for this proposed project.	The analysis in the SVWEF EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
15	10	NEPA	40	6	A full EIS should thoroughly analyze the project impacts on all wildlife and plant species, design alternatives to avoid adverse impacts, and require mitigation for all unavoidable adverse impacts.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA does describe the impacts to wildlife and vegetation, includes and alternative that avoids sensitive resources, and includes extensive resource conservation measures and mitigations to limit unavoidable adverse impacts.
16	10	NEPA	42	6	A full EIS should analyze the cumulative impacts of all expected future energy developments in Spring Valley on Spring Valley public lands and resources.	Reasonably foreseeable future wind projects in Spring Valley, and their associated transmission needs, are described in Table 5.0-1 of the Preliminary EA and are included in the cumulative impacts analysis.
14	10	NEPA	42	6	The EA fails to adequately assess cumulative impacts of the current and future energy projects in Spring Valley. How many wind and other energy projects area planned for siting in Spring Valley? (You can check the BLM map at: http://www.blm.gov/pgdata/etc/modialib/blm/nv/energy.Par76092.File.dat/20090610_renewable_energy_projects_map.pdf). What additional powerlines are planned in Spring Valley to carry future energy?	Reasonably foreseeable future wind projects in Spring Valley, and their associated transmission needs, are described in Table 5.0-1 and included in the cumulative impacts analysis.
13	10	NEPA	46	6	The EA fails to do adequate assessments of project impacts to other public resources, including raptors, pygmy rabbits, and all of the rare plants in the project area in Spring Valley.	Impacts to raptors are described in Sections 4.2.2.6, 4.2.3.6, 4.3.2.5, and 4.3.3.5. Impacts to pygmy rabbits are described in Sections 4.3.2 and 4.3.3. Based on GIS data available through the Nevada Natural Heritage Program (NNHP), Parish phacelia (*Phacelia parishii*) is the only federally or state protected plant species known to occur within or near the project area. Impacts are described in Sections 4.3.2.7 and 4.3.3.7.

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2	10	NEPA	46	6	This EA fails to provide site specific information on Spring Valley public lands and resources.	Chapter 3 of the Preliminary EA presents information on the potentially affected existing environment.
1	11	NEPA	40	6	Given the profound impacts on bats, song birds, sage grouse, and swamp cedars, this project warrants a full Environmental Impact Statement.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the “significance” of environmental impacts; it provides a basis for rational decision making.
4	11	NEPA	40	6	There are significant impacts and an EIS is needed. The Programmatic EIS for wind projects considered the overall impacts, but it is the Department of Interior's responsibility to be a steward of its lands - BLM land and the National Park.	The analysis in the SVWEF EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the “significance” of environmental impacts; it provides a basis for rational decision making.
5	11	NEPA	45	6	This project does not appear to be coordinated with NPS. It also appears to be on an expedient fast track. Please slow down, BLM, and take time to consider all the impacts at an EIS level, including if there is sufficient wind to justify the desecration of the public land and the creatures and communities that depend upon it.	The National Park Service participated in a project stakeholder meeting held in Ely on October 20, 2008. Additionally, The NPS was provided the opportunity to comment on a Draft EA prior to release for public comment. The Preliminary EA discloses impacts of the proposed action and alternative action as well as an extensive list of resource conservation measures and mitigation measures to reduce the level of potential impacts.
1	14	NEPA	40	7	It is inappropriate for the BLM to attempt to streamline approval of this project with only an Environmental Assessment. Every other wind energy project proposal on public lands, many with fewer turbines on smaller acreage, is undergoing full review with the required Environmental Impact Statement. Placing an 8,500 acre wind energy facility in this area will undoubtedly create unlimited problems with wildlife resources. In spite of efforts from the public to participate in informing BLM personnel about the direct and cumulative impacts of this project, it is still being frivolously rushed through by the agency with only an inadequate EA.	There are operating wind facilities on BLM lands in the adjacent states of Utah and Arizona that have gone through the NEPA process under an Environmental Assessment tiered to the Programmatic Wind EIS, including the Milford Wind Farm in Utah, and the Dry Lake Wind Farm in Arizona. Additionally, as stated in BLM IM 2009-043 Wind Energy Development Policy "To the extent that the Programmatic EIS addresses anticipated issues and concerns associated with an individual wind energy project, including potential cumulative impacts, the BLM will, by policy, tier off of the analysis in the Programmatic EIS and limit the scope of additional project-specific NEPA analyses."
10	14	NEPA	41	6	An EIS should list at least three more alternatives. The Alternative Development Alternative still would disturb the hydrological resources of the Swamp Cedars Area of Critical Concern, disrupt connectivity for pronghorn antelope, remove habitat for the sage grouse and pygmy rabbit, still kill many raptors and passerines, and still potentially destroy the population of Mexican free-tail bats in the Rose Guano Cave. We are surprised that the EA fails to find an alternative away from the site. The project is centrally placed in the worst location possible concerning preservation of wildlife resources. We can only conclude that BLM is pandering to Pattern Energy so they can get the shortest distance to a transmission line. The DEIS fails to consider enough alternatives and fails to follow the requirements of NEPA listed below. There is no quantitative data that proves that this project will have economic benefits and offset greenhouse gas emissions.	The BLM elected to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American conflicts. The Preliminary EA does disclose there would be impacts to wildlife resources as a result of each alternative, however, there is no evidence that the project location is the "worst location possible concerning preservation of wildlife resources." As summarized in Section 8.3.4.2 of the BLM NEPA Handbook, section 102(2)(E) of the NEPA provides that agencies of the Federal Government shall "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."
13	14	NEPA	41	6	The BLM has failed to provide an adequate alternative away from the site. Although we do not feel that a project like this is appropriate on public lands, we do feel that the BLM has provided an incomplete analysis of alternatives based on the DEIS and would like to see one off site. An alternative should be developed using lands at least twenty miles away from the Rose Guano Cave.	Alternate project locations were considered as described in Sections 2.5.1 and 2.5.2 of the Preliminary EA. The project area is currently 4 miles from Rose Guano Cave. An alternate location farther from the Cave would not necessarily reduce potential impacts to the Brazilian free-tailed bats, and may result in greater impacts to other resources such as greater sage-grouse resulting from the need for a new transmission line to be installed.
11	14	NEPA	41	8	Distributed generation in the built environment should be given much more dispatchable baseload behind it, and also does not have storage. But environmental costs are negligible with distributed generation, compared with the Spring Valley Wind project. Distributed generation cannot be "done overnight", but neither can large transmission lines across hundreds of miles from remote central station plants to load centers. Most importantly, distributed generation will not reduce the natural carbon-storing ability of healthy desert ecosystems, will not disturb soil crusts, and will not degrade and fragment habitats of protected, sensitive, and rare species.	A distributed generation alternative would not meet the purpose and need for action. Additionally, the BLM does not have the authority to make a decision on distributed generation.
14	14	NEPA	41	8	Please provide another No Action Alternative that denies approval of the project and designates the region unsuitable for wind energy development.	Land use allocations that designate BLM managed lands as unsuitable for a specific use can only be made through the land use planning process. The current BLM RMP identifies Spring Valley as having high wind energy potential. Designation of the region as unsuitable for wind energy development would be an action alternative that does not meet the purpose and need of the project and would have to be completed through a land use plan amendment.
12	14	NEPA	41	8	Alternatives should be looked at that are in load centers, not closest to the project site. There is a need to consider the "macro" picture, the entire state, to look at maximum efficiency.	Considering alternative locations throughout the entire state is beyond the scope of analysis for the proposed Spring Valley Wind Facility. Such a wide range of alternatives would not meet the purpose and need for action.

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6	14	NEPA	42	6	This project will directly impact 8,500 acres as well as cumulatively impact Spring Valley as a whole.	Impacts described in Chapter 4 include both the direct ground disturbance associated with the proposed Wind Energy Facility, as well as impacts related to the presence of construction equipment and operating Wind Turbine Generators. The Cumulative Impacts analysis considers the Spring Valley Watershed as a whole.
2	14	NEPA	45	6	Although we understand that BLM is under considerable political pressure to develop renewable energy, we believe it is unwise for the BLM to be using "fast tracking" seemingly to expedite approval of this project. We feel that there are enough outstanding unresolved issues that make approval and construction of facilities by December of 2010 under the American Recovery and Reinvestment Act a very unrealistic goal. This process has lead to an unreasonably rushed schedule that has the potential to have long term impacts on natural resources and overlooks the many concerns that public and adjacent private land owners have raised. The rushed schedule has resulted in a distrust and lack of faith in the ability of our public land agencies and elected officials to actually develop renewable energy in a way that could by sustainable for the future. Furthermore, the fast tracking undermines laws established under the National Environmental Policy Act that have been enacted to insure that resources on public lands are managed soundly for future generations. We would also like to request that the deadline of this comment period be extended so interested parties may comment fully.	As stated in Section 1.1 of the Preliminary EA: Spring Valley Wind applied for a ROW grant for Commercial Wind Energy Development in October of 2007. The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant." Through the NEPA process of preparing an Environmental Assessment (EA), the public has had the opportunity to comment on the initial preliminary EA during the public comment period (12/16/2009- 1/15/2010) and during public meetings. In addition a public comment period was established from July 17 to August 18, 2010, on the revised Preliminary EA. The deadline for comments on the Preliminary EA has not been extended.
23	14	NEPA	45	6	NEPA requires agencies to disclose environmental consequences, but the Executive Order 13212 directs Federal Agencies to streamline the approval of environmentally responsible renewable energy. BLM is succeeding all too well in streamlining approval but falls dramatically short on insuring that the Spring Valley Wind Project will be environmentally responsible.	The Preliminary EA discloses the environmental impacts of the proposed project in Chapter 4 and identifies resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6 that would be required in order to reduce those impacts.
3	14	NEPA	46	7	Please explain the reasoning for issuing a "Draft Findings of No Significant Impact". We believe it is not appropriate for the BLM to assume that this project deserves this consideration before they can consider all of the comments from interested parties.	The BLM is also seeking comments on the draft Finding of No Significant Impacts per guidance in BLM Handbook H-1790-1 section 8.4.2. The FONSI would not be signed until the public review is completed and any necessary changes to the Final EA are made.
18	14	NEPA	48	6	The DEIS inadequately analyzes the project's potential to remove soil crusts, thus causing an erosional chain reaction that will result in increased dust from blowing winds. How would this be mitigated?	Section 2.1.2.2 of the Preliminary EA address mitigation for the potential for increased dust. It states that "In addition to grading, the application of new gravel may be necessary to maintain road surfaces. Water would be used as needed for dust control." In addition, a dust abatement plan will be included in the final COM plan.
17	16	NEPA	10	6	The nature of the decision warrants and the public deserves an opportunity for full public participation in the NEPA process through the preparation of an environmental impact statement.	Through the NEPA process of preparing an Environmental Assessment (EA), the public has had the opportunity to comment on the initial preliminary EA during the public comment period (12/16/2009- 1/15/2010) and during public meetings in Ely and Baker. In addition, a public comment period was established from July 17 to August 18, 2010, on the revised preliminary EA.
21	16	NEPA	10	6	The public has not been adequately informed by the BLM of the potential impacts from this project due to the nature of the EA process as opposed to an EIS process. It appears that the BLM is reticent to provide adequate information to the public on the environmental impacts of the proposed project and compliance with BLM's duties pursuant to FLPMA and the internal direction, such as BLM Manual 6840-2, to protect the resources of these public lands.	Through the NEPA process of preparing an Environmental Assessment (EA), the public has had the opportunity to comment on the initial preliminary EA during the public comment period (12/16/2009- 1/15/2010) and during public meetings in Ely and Baker. In addition, a public comment period was established from July 17 to August 18, 2010, on the revised preliminary EA.
3	16	NEPA	40	6	The Council on Environmental Quality's regulations implementing NEPA make clear that federal agencies can avoid preparing an EIS only if the federal action will have "no significant impact" on the environment. 40 C.F.R. 1501.4(e). Case law interpreting the regulations indicates that the agency should make this finding confidently and with certainty that no "substantial questions" exist as to whether or not "a project may have a significant effect." See LaFlamme v. Fed. Energy Regulatory Comm'n, 852 F.2d 389, 397 (9th Cir. 1988). Because the proposed race may in fact have significant impacts, the BLM is required to prepare a full EIS. As the Ninth Circuit has observed, "No matter how thorough, an EA can never substitute for preparation of an EIS, if the proposed action could significantly affect the environment."	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant." In addition, Chapter 6 of the PEA describes mitigation measures consistent with BLM NEPA Handbook Section 6.8.4 which states in part, "Mitigation measures can be applied to reduce or eliminate adverse effects to biological, physical, or socioeconomic resources. Mitigation may be used to reduce or avoid adverse impacts, whether or not they are significant in nature."
1	16	NEPA	40	6	We are extremely dismayed and disappointed that the BLM has once again erred in preparing an EA rather than an Environmental Impact Statement. Given the significance and intensity, we and others called for an EIS to be prepared in our earlier comments. The Ninth Circuit has repeatedly held, an EIS must be prepared if the EA shows that the proposed project may cause significant impacts to the environment. 40 C.F.R. 1501.3, 1501.4; see, e.g., Ocean Advocates v. United States Army Corps of Eng'rs, 361 F.3d 1108 (9th Cir. 2004); Metcalf v. Daley, 214 F.3d 1135, 1142 (9th Cir. 2000); Blue Mountain Biodiversity Project v. Blackwood, 161 F.3d 1208, 1212 (9th Cir. 1998). NEPA requires the BLM to prepare an environmental impact statement if "substantial questions are raised as to whether a project... may cause significant degradation of some human environmental factor.' To trigger this requirement a 'plaintiff need not show that significant effort will in fact occur.' raising 'substantial questions whether a project may have a significant effect' is sufficient." Idaho Sporting Cong. v. Thomas, 137 F.3d 1146, 1149-50 (9th Cir. 1998)(internal citations omitted); see also 42 U.S.C. 4332(2)(C). While any mention of an adverse impact does not necessarily compel an EIS, but an agency should not use a	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The Preliminary EA also identifies extensive resource conservation measures listed in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required by the BLM and would reduce potential impacts to a less than significant level.

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5	16	NEPA	40	6	In this instance, both the context and intensity of the proposed decision show that an EIS should have been prepared for the entire project. Given the scope and intensity of the likely impacts, we believe, the BLM would be hard pressed to make a "convincing statement of reasons" that the impacts of the proposed wind development are insignificant.	The BLM has not issued a decision document, only the Preliminary EA, and draft Finding of No Significant Impact. Analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant."
11	16	NEPA	46	6	The "substantial questions" raised by the types of impacts likely to be associated with the proposed development certainly implicate many of the NEPA regulations' "intensity" factors, including those relating to "unique characteristics" of the project area.	Chapter 3 of the PEA describes the existing character of the affected environment. Project Resource Conservation Measures and Mitigation Measures are included as part of the Preliminary EA to ensure that impacts do not reach a level of significance beyond what is described in the Wind PEIS.
4	16	NEPA	48	6	In this case there are substantial questions as to whether the proposed wind energy development would significantly impact the natural and human environment, including via impacts to wildlife, habitat, springs and visual resources. Before reaching any conclusion that the impacts will not be significant, the BLM must put its action into context and evaluate the intensity of the action and likely environmental effects.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant."
2	16	NEPA	48	6	Where impacts to imperiled species are at issue, the agency must carefully consider all potential adverse effects. As the Ninth Circuit put it: "[a]although the presence of some negative effects does not mandate a finding of significant impact, the agency must 'consider the degree of adverse effect on a species.'" Alaska Wilderness League v. Kempthorne, 548 F.3d 815, 826 (9th Cir. 2008) (finding the agency failed to take a hard look at impacts to whales in an EA tiered to a programmatic EIS). See also Native Ecosystems Council, 428 F.3d at 1250 (finding agency analysis insufficient where record failed to describe the type or amount of habitat necessary to sustain the viability of the species.	Section 4.3 - Special Status Species of the Preliminary EA summarizes the impacts to special status species described in the Wind PEIS, and goes into further detail describing the potential adverse impacts to special status species known to have the potential to occur in the Spring Valley project area. Those adverse impacts are based on field surveys completed and data collected that are specific to the Spring Valley Project. Additionally, the Preliminary EA includes a site-specific Avian and Bat Protection Plan to mitigate impacts identified for bird and bat species including special status species.
4	17	NEPA	40	6	NWP believes that this study should have been conducted at the Environmental Impact Statement level and not as an EA. NWP does not agree with the BLM that the NEPA process for this project can be tiered off of the PEIS because an EA does not adequately address potential impacts to the resources in and near the proposed project in Spring Valley. We think that there should be more detailed analysis of possible alternatives.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA does provide a detailed analysis of the impacts of the proposed action and includes an alternative that avoids sensitive resources. Additionally, the preliminary EA includes extensive resource conservation measures and mitigation measures to limit unavoidable adverse impacts.
13	17	NEPA	42	6	Cumulative effects are not adequately addressed within the EA. There are a total of 16 wind projects and three transmission projects listed on the Nevada BLM website in the Ely district alone. The EA lists only three projects in the reasonably foreseeable future. NWP requests that all of the renewable energy projects that are not listed in the cumulative effects section.	Table 5.0-1 of the cumulative impacts analysis summarizes the past, present, and reasonably foreseeable future actions that are considered for cumulative impacts. The reasonably foreseeable future actions considered in this EA are those that are in planning stages with a reasonable expectation of occurring over the anticipated life of the project. Considering the effects of all proposals on BLM lands in the Ely District is too broad an analysis. As described in Chapter 5 of the PEA, the geographic area of cumulative impacts analysis is generally based on the natural boundaries of the resource affected.
1	17	NEPA	42	8	Nevada Wilderness Project recognizes that much of the BLM lands in Nevada have been seen cumulative impacts from various land uses that have fragmented, degraded or destroyed wildlife habitats throughout Nevada. We ask that the Ely Bureau of Land Management consider the cumulative impacts of land use including additional proposed renewable projects and management activities as they are related to cultural resources and wildlife and their habitats in a more holistic fashion.	Table 5.0-1 of the cumulative impacts analysis summarizes the past, present, and reasonably foreseeable future actions that are considered for cumulative impacts. Considering the effects of past actions on BLM lands throughout Nevada is too broad an analysis. The geographic area of cumulative analysis is generally based on the natural boundaries of the resources effected by the proposed Spring Valley project.
3	17	NEPA	42	8	The Spring Valley wind energy project and other future development on BLM lands should have conservation offsets for cumulative impacts in the form of strong, permanent protection of landscapes that possess high quality wildlife habitats, cultural or other unique resources. This protection may be in the form of administrative designations, assuming such designations have strong, enforceable management language that will remove threats to further degradation of resources, or through specific agency requests for legislative designations that would add important areas to the National Landscape Conservation System.	The BLM can only make administrative designations such as Areas of Critical Environmental Concern through its land use planning process or by amending its existing land use plan. The BLM does not have the authority to make legislative designations adding areas to the National Landscape Conservation System. Additionally, there are currently several designated areas providing for the permanent or long-term protection of wildlife habitat, cultural resources, and lands surrounding the proposed Spring Valley Wind Facility; High Schells Wilderness, Mount Moriah Wilderness, Great Basin National Park, Rose Guano Cave ACEC, and Spring Valley ACEC.
5	17	NEPA	45	7	We understand the Spring Valley Wind project was designated as one of the "Fast Tracks," but this does not mean that the analysis should be less rigorous.	The term" Fast track " was only used to give a priority to this project among all the other renewable energy projects and was not connotative to the speed of the environmental analysis. Extensive field surveys for biological, cultural, special status species, hydrology, and visual resources were conducted in support of the analysis in the Preliminary EA as found and described in Chapter 4. The Preliminary EA does provide a rigorous and detailed analysis of the impacts of the proposed action and includes an alternative action developed to provide additional avoidance of sensitive resources. Additionally, the Preliminary EA includes extensive resource conservation measures and mitigation measures to limit unavoidable adverse impacts.

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19	18	NEPA	10	8	As noted in the document and as identified in Appendix F in the ABPP, the Technical Advisory Committee will be tasked with protecting wildlife resources at the SVWEF. It is anticipated that a considerable amount of time will be required by members of this TAC. As such, participating agencies should be eligible for cost reimbursement for the time and expense incurred in the committee process. NDOW provided this comment on the June 2010 administration draft version of the document. BLM's response directly to NDOW was "Cost reimbursement is something that must be worked out as part of the TAC charter when signed." It should be stated in this EA that agencies participating in the TAC will be reimbursed for time and travel expenses.	Determining cost reimbursement is appropriately addressed as part of the TAC charter and not through the EA.
2	18	NEPA	46	9	The programmatic EIS on Wind Energy Development is now five years old and has not kept pace with developments in technology, nor does it draw on the experience gained from five years of wind energy operations. The direction from the Programmatic EIS was to incorporate sufficient on-site data was not utilized to develop a clear picture of the night-time bird activity nor the anticipated mortality of birds and bats. Although this is not a requirement, NDOW feels that it would have allowed for a more accurate accounting of anticipated impacts.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. While the Preliminary EA does summarize the relevant impacts described in the PEIS, it also provides site-specific detailed analysis of the impacts of the proposed action and alternative and relies on the current best available information on technology and data on impacts from wind energy facilities. Based on conversations with NDOW following this comment, a measure has been added to the initial mitigation measures in the ABPP to complete nocturnal surveys using both radar that will be on site as well as other means such as video technology. That data will be used to help inform adaptive mitigation measures if avian mortality is found that correlates to survey data. Reliable data regarding avian use in the RSA was collected and detailed in the pre-construction avian and bat study report by SWCA.
1	18	NEPA	48	6	There is a lack of experience in documenting the environmental impacts and developing suitable mitigation for wind projects in Nevada. NDOW has identified a need for developing a set of standardized protocols for preconstruction surveys and project monitoring for bird and bat mortality within Nevada. Development of a current industry-wide list of effective best management practices to minimize project impacts would also be of great value.	The Preliminary EA identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required.
9	18	NEPA	48	7	On page 144, in Section 6.1 Mitigation, the environmental assessment states "If implemented, these mitigation measures in combination with the design criteria and relevant PEIS and RMP/FEIS measures would eliminate or substantially reduce all potential impacts." Data from the proponents existing mitigation operations (which utilizes this technology) that would support this contention are not available for review. This information would be very helpful demonstrating the effectiveness of the technology in reducing impacts to wildlife resources. NDOW would like to review this data as soon as it becomes available.	BLM will provide NDOW with data as it becomes available.
4	20	NEPA	40	7	Start by requiring a full EIS.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative.
31	26	NEPA	10	6	Table 3 of the Plan reveals that BLM and the proponent ignored public comment and input on their prior deficient PEA.	Chapter 7 of the PEA describes the public participation and agency consultation opportunities made available by the BLM prior to and during preparation of the EA. The BLM considered all public comments received on the initial Draft EA during the preparation of this Preliminary EA.
24	26	NEPA	10	6	BLM still has not listened to significant public comments, and significant issues raised. The PEA cumulative impacts analysis remains greatly lacking. Many issues raised on comments on the PEA and otherwise include: Alternative siting evaluation focusing on disturbed sites/areas closer to where energy will be used. Collection of much more complete avian and other Baseline data was ignored. Concerns about the inadequacy of data and analysis of impacts were ignored. Detailed analysis of effects of development on water resources, ACEC, and other values are minimally examined. Fire risk, toxic materials, full effects of noise pollution, light pollution, and severity of environmental change are ignored. Significant impacts to local and regional populations of wildlife are only minimally examined. Mitigation and its effectiveness remain highly uncertain.	In addition to summarizing the relevant impacts described in the BLM Wind PEIS, the Preliminary EA also describes the site-specific impacts to water resources, ACEC, noise, night skies, and wildlife, and includes an alternative that avoids sensitive resources, as well as extensive resource conservation measures and mitigations to limit unavoidable adverse impacts. The analysis is based on the best available data including site-specific data collected on avian and bat species associated with he project area, 100% coverage cultural resource inventories, and visual contrast analysis. The EA includes an alternative layout for analysis, and describes alternative locations that were considered but eliminated from detailed analysis.
62	26	NEPA	10	6	Plus, this Turbine shut down all appears to be in the hands of Industry, Since SVW has failed so miserably in acquiring necessary upfront data and being responsible in the NEPA process, the public can put no faith in "responsible" shutting off of turbines. If the company won't even bother with EIS level analysis, it is hard to believe will never adequately curtail turbine use - since turbine operation represents profits. Will any of this data be public? Will it be for Industry Eyes only, as the wind speed data not is?	A variety of field studies, including both avian and bat surveys, were conducted over a two-year period in response to concerns about potential wildlife impacts of the proposed Spring Valley Wind Facility. The Avian and Bat Protection Plan requires initial turbine curtailment be conducted between August 1 through September 31 in the first year of operations because of the presence of Brazilian free-tailed bats. In addition, the ABPP includes and adaptive management process for when mortality thresholds are exceeded. The BLM Authorized Officer is the decision-maker regarding additional mitigation measures for implementation, not the proponent. The data collected will be available to the public.

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59	26	NEPA	40	6	BLM is using the irreplaceable and highly vulnerable rare bat species of Spring Valley for "experiment" in testing technology. It is also relying on highly risky "adaptive management" - without ever providing necessary key data, or examining the likely effects on local and regional populations under a variety scenarios. This alone requires preparation of an EIS.	As described in Section 5.2 of the Avian and Bat Protection Plan, existing data support the initial curtailment mitigation being implemented because of the presence of Brazilian free-tailed bats. Studies have shown that increased cut-in speeds are effective in reducing bat mortality by 53% to 87%. Site-specific testing would be conducted to determine the effectiveness for this proposed project. Additionally, the analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant."
64	26	NEPA	40	6	An EIS is required to provide full and detailed analysis of any and all mitigation actions, plans, etc.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) is prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
1	26	NEPA	40	6	It is impossible to understand why Ely BLM will not prepare the necessary EIS for this precedent-setting, major and expensive project that is poised to destroy interstate and perhaps Westwide populations of migrating bats, as well as large numbers of the Great Basin's Golden Eagles and other raptors, migratory songbirds, and world class scenic views on the edge of Great Basin National Park. This Project is certain to have highly significant adverse impacts to the environment. Just the visual impacts alone will be greatly significant and highly discordant in this unique valley and remote rural area accessed by the Loneliest Highway on America, and bordered by scenically spectacular public lands. The valley is a critical component of the spectacular views of, and from, Great Basin National Park.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant." Also Chapter 4.0 of the PEA presents the anticipated environmental consequences of implementation of each alternative.
76	26	NEPA	40	6	There are clearly extraordinary circumstances, and extraordinary concerns related to any development in Spring Valley with it many spectacular and imperiled resources. So an EIS is essential.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) is prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
58	26	NEPA	40	6	The project has already gotten off to a terrible start by trying to do things in a slipshod manner with two successive woefully deficient Easy. The only way public confidence can be restored is if the whole range of effects, based on solid upfront much more intensive and extensive biological, aquifer/soil stability, weather, recreation/visual, and other studies are conducted.	Chapter 4 of the PEA presents the anticipated environmental consequences of implementation of each alternative as described in Chapter 2. For the analysis, existing data, appropriate scientific methodologies, and professional judgment were used. The analysis also takes into account the resource conservation measures identified in Chapter 2, including referenced appendices. This analysis was done using the best available information, including site-specific data collected during bird and bat studies, cultural resource inventories, and visual contrast analysis. Additional data from the PEIS and from federal and state agencies for resources in the area were used to support the analysis.
16	26	NEPA	40	7	EA at 2 states: In October 2007, SVW applied for a ROW grant from the BLM for Commercial Wind Energy Development Facilities, as described in IM 2006-216. The ROW application included a draft Plan of Development for the construction, operation, and maintenance of the 149.1-MW Spring Valley Wind Energy Facility (SVWEF) and associated facilities. Additionally, a mineral materials permit would be issued for Gravel Pits A and B. The proposed SVWEF would be located in Spring Valley about 20 miles east of Ely, Nevada (Figure 1.1-1). Facilities for the Proposed Action would consist of 75 wind turbine generators (WTGs), an underground electrical collection system, a substation, a switchyard, and operations and maintenance (O&M) building, and access roads. The BLM determined that an EA was needed to determine whether the project would result in significant environmental impacts beyond those already disclosed in the NEPA documents discussed in Section 1.0. This shows Ely BLM has long known about this project, the highly controversial nature of various development and resource depletion schemes in and near this area, yet has absurdly refused to require that the Applicant/proponent prepare the necessary EIS. This may very well be due to the extreme politicization of this project, and bias within the Interior Department in favor of this and several other energy project proponents. This bias may be	The BLM Handbook describes in Chapter 8, "An environmental assessment is a tool for determining the 'significance' of environmental impacts; it provides a basis for rational decision making." The BLM is following the NEPA process.
7	26	NEPA	40	7	If this project is allowed to go forward under this greatly inadequate EA that fails to analyze all direct, indirect and cumulative impacts, it will be the first in a series of piecemeal wind energy projects that will destroy the entire valley area, viewsheds, local and regional/intermountain West wildlife populations and habitats, rare plants, cultural settings, and many other important values of the public lands. The Spring Valley Project's deficient EA is highly significant in opening the door to the massive industrialization of this remote, beautiful, biologically critical and very fragile area. Thus, it sets a precedent for large-scale future actions with dire effects to the valley and the biota that inhabit it.	Chapter 4 of the Preliminary EA summarizes the relevant impacts from the Wind PEIS and describes the site-specific direct, indirect, and cumulative impacts of the proposed action and alternative action based on data collected, and field inventories conducted specific to the project area. The reasonably foreseeable wind energy projects in Spring Valley are described in the analysis of cumulative impacts in Chapter 5. The BLM is not making a decision on future actions in this EA, only the proposed Spring Valley Wind Facility. Consideration of all future actions on BLM lands in Spring Valley will be subject to additional site-specific NEPA analysis.

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94	26	NEPA	41	6	Alternatives that examine Wind Project site in the Nevada landscape based on minimizing volant species impacts must be examined. Why has BLM not required this be done?	The BLM elected to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American conflicts. An analysis of both action alternatives, as well as the No-Action Alternative is presented in Chapter 4 of the Preliminary EA.
72	26	NEPA	41	6	The Alternative Development Alternative is not much of alternative at all, and there is not valid alternatives analysis. There is no valid range of alternative actions, either such as analysis of effectiveness of mandatory shut-down of the facility for 6 moths out of the year to protect rare bats and birds. April - September	The BLM elected to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American conflicts. An analysis of both action alternatives, as well as the No-Action Alternative is presented in Chapter 4 of the Preliminary EA. Additionally, turbine shutdowns are included as a mitigation described in Appendix F - Avian and Bat Protection Plan, of the Preliminary EA. Starting in phase II, there can be up to 15,000 turbine hour shutdowns to mitigate for potential avian and bat mortalities. This goes up to 37,500 turbine hours shutdown in phase V.
22	26	NEPA	41	6	It states that there will be an increasing demand for energy. Yes, there may be - but right now demand is down - providing ample time for responsible siting and sound conservation of natural resources. Page 4 describes "production and transmission of energy in an environmentally sound manner". It is not environmentally sound to site a massive industrial facility in a remote desert valley right next to bat caves used by millions of bats. It is not environmentally sound to seek "greenfields" siting, when mine, weedland and other "brownfields" sites are available, or siting closer to where any power will be used will help conserve energy and minimize or reduce impacts to highly sensitive areas.	Wind energy facilities must be located where there is potential for wind, and cannot be limited to existing "brownfield" sites. The Ely RMP identified this part of Spring Valley as having wind energy potential. Although the analysis of alternatives is not required for an Environmental Assessment, the BLM did elect to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American resources. The Preliminary EA discloses the potential adverse impacts of each alternative to a range of resources, however, the alternatives are both located 4 miles from Rose Guano Cave, the site layout for both alternatives takes advantage of existing transmission infrastructure, and the alternatives would only result in the long-term ground disturbance of 111 acres, or 1.3% of the project area. In addition, the Preliminary EA includes extensive Resource Conservation Measures and Mitigation measures to further reduce potential impacts.
21	26	NEPA	41	6	The purpose and need are self-serving, and must be expanded an a reasonable range of alternative actions considered - such as siting closer to the places power will be used, brownfields siting, and other reasonable alternatives.	As stated in Section 6.2 of the BLM NEPA Handbook: "…the purpose and need statement be brief, unambiguous, and as specific as possible." The purpose and need statement for the Spring Valley Wind Energy Facility is consistent with existing decisions, policies, regulations, and laws including the Ely BLM RMP/ROD, Executive Order 13212, and the State of Nevada Renewable Portfolio Standard.
17	26	NEPA	41	6	There has been plenty of time to examine reasonable alternatives for siting of wind facilities, and for BLM to conduct necessary planning that focuses on alternative sites these facilities in disturbed sites, brownfields sites like mines, or areas that are weedlands.	Wind energy facilities must be located where there is potential for wind, and cannot be limited to existing "brownfield" sites. The Ely RMP identified this part of Spring Valley as having wind energy potential. Although the analysis of alternatives is not required for an Environmental Assessment, the BLM did elect to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American conflicts. In addition, the site layout of both alternatives would only result in the long-term ground disturbance of 1.3% of the project area.
23	26	NEPA	41	6	There is no comparison of how much energy will be lost in transmission to Los Angeles/CA where the power is to be used. Wouldn't a wind project actually supply a lot more power if it were sited in the area where the power is to be used, plus have a smaller carbon footprint? Aren't there new SWIP and other powerlines that go by much less sensitive areas? Why are alternatives, including weedlands or areas of low biodiversity closer to the southern SWIP area not being considered? That way, there also will not need to be another power line built, and power line sprawl occur, as development destroys that are to the north in SV, as well.	Spring Valley Wind has entered into a power purchase agreement with NV Energy, not an out of state utility. Additionally, an existing transmission line passes through the center of the proposed Spring Valley Wind Facility. The proposed Spring Valley Wind Facility is located in an area of adequate wind potential with direct access to existing transmission.
20	26	NEPA	41	8	See http://www.elp.com/index/from-the-wires/wire_news_display/1231683873.html. This article say this assessment is for the next "wave" of projects. However, in the case of SVW, WWP specifically raised the issue of brownfields, mine, weedland other alternative siting in comments on the previous deficient SVW Wind EA, and it must be fully considered in an EIS for the SVW Project.	The study referenced in the comment is outside the scope of this project. The BLM has a need to respond to the ROW application submitted by Spring Valley Wind for the proposed wind energy facility. Wind energy facilities must be located where there is potential for wind, and cannot be limited to existing "brownfield" sites. The Ely RMP identified this part of Spring Valley as having wind energy potential.
15	26	NEPA	42	6	ALL of this proposed or foreseeable haphazard "renewable" development is moving forward without any sound or integrated planning to minimize adverse impacts to biological, cultural, scenic/recreational, watershed/aquifer effects. Plus, there has been no planning or analysis that examines the severity of the losses of the ecosystems to buffer climate change effects if haphazard renewable sprawl is allowed to occur in wild lands, rather the brownfields, weeded areas, or other already highly degraded sites. The full direct, indirect and cumulative effects of all of this massive industrialization with wind facilities, transmission lines and likely several hundred more miles of roads in this fragile landscape must be examined in an EIS for Spring Valley Wind. The SVW Project, if this deficient EA is allowed to stand, represents the first step in the destruction of the valley and its irreplaceable resources. What will the impact be on habitats and populations, and population viability, of Sage Grouse, Pygmy Rabbit, Golden Eagle, Ferruginous hawk, several species of rare bats, and a variety of migratory songbirds.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant."
19	26	NEPA	42	7	We also understand that if this project is built, the existing high voltage line that moves power to California will be "maxxed out". Thus an entire new major transmission line would be required for even a small project anywhere over the vast area served by the line. Yet aren't other projects too being considered in Utah and Nevada? Why is this type of essential info not provided, and foreseeable impacts revealed? What impacts will even more transmission lines have on Sage Grouse and other wildlife?	Spring Valley Wind has entered into a power purchase agreement with NV Energy, not an out of state utility. Additionally, an existing transmission line passes through the center of the proposed Spring Valley Wind Facility and NV Energy has determined there is adequate capacity. The need for additional transmission is discussed in the cumulative impacts section of the EA (Chapter 5).

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14	26	NEPA	42	7	We understand that Ely BLM has mapping and other information in hand that shows the magnitude of proposed wind, water storage pump, plethora of transmission lines, and other features planned across the District. All such mapping should be part of the Spring Valley file, and provided to the public in the necessary EIS here.	Figure 5.0-1 of the Preliminary EA shows the reasonably foreseeable future projects within the geographic scope of analysis. The figure has been revised to show Transmission Corridors. Any additional data can be obtained directly from the BLM Ely District Office.
10	26	NEPA	42	8	How will all of Ely BLM's various deforestation schemes in the Spring Valley, Antelope and other watersheds increase and amplify soil erosion and dust storms, site heating, dust deposition events that may threaten rare plants or spawn more weeds, events, and potential micro-site changes in winds and weather? How will all of the U.S. Forest Service's burning, chopping, masticating, and other schemes in the Schell Creek Range further stress native biota, diminish habitat for migratory birds, and potential alternative foraging habitat for rare bats?	These issues are outside the scope of the Spring Valley Wind Facility project.
13	26	NEPA	42	9	The cumulative impacts analysis is greatly deficient, and fails to properly examine risks to rare and sensitive species, habitats, recreational uses, watersheds, and other threatened values.	The cumulative impacts analysis has been revised to provide more detail on the incremental impacts of the past, present, and reasonably foreseeable future actions and how the proposed Spring Valley Wind Facility contributes to them for each of the resources analyzed.
18	26	NEPA	45	6	Ely BLM continues to err in trying to push an EA and FONSI through for this environmentally devastating project. Yet the Interior Department has recently touted conducting a rapid assessment for suitable energy siting. A viable alternative here is to wait until that planning is done, and determine if siting the plant in another make ecological, scenic, societal, and economic sense.	An assessment of the site has already been completed. The Ely BLM Resource Management Plan (2008) identifies Spring Valley as having high wind energy potential. The proponent, Spring Valley Wind LLC, has conducted two years of wind potential studies and has determined that it is a suitable site for wind energy development. The BLM has required site-specific data collection and field inventories of biological, cultural, and visual resources for the project. The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant."
95	26	NEPA	46	6	BLM cannot rely on the Wind PEIS, as it does not adequately address highly significant concerns with this ill-sited project, and the high degree of controversy surrounding this siting.	The BLM does not rely solely on the Programmatic Wind EIS. The Preliminary EA appropriately tiers to the PEIS and provides site-specific analysis based on data collected specifically for the Spring Valley Wind project.
25	26	NEPA	46	6	Even basic info on the wind facility and components including potential harmful substances, is not yet provided. Geotechnical studies are not yet all completed (EA at 8).	A safety plan will be developed and implemented as part of the COM plan. Remaining geotechnical studies would be necessary to finalize foundation designs and are not necessary to determine potential impacts of the proposed Wind Energy Facility.
91	26	NEPA	46	6	It is an outrage that the proponent gets veto power over "additional curtailment". This whole section interdependent actions is highly uncertain, overly complicated, and cannot be accepted. This risks to irreplaceable wildlife is too great. The bottom line is : The BLM must select the NO Action alternative. We also stress that the EA failed to provide adequate data and analysis for evaluation of the No Action alternative. No "hard look" was taken.	Phase I mitigation described in the Avian and Bat Protection Plan includes cut-in speed curtailment for the equivalent of 62 days per year, 12 hours per day. These times increase with each additional phase, although increases within one year would require proponent approval. The Preliminary EA describes the site-specific impacts to potentially effected resources and includes and alternative that avoids sensitive resources, as well as extensive resource conservation measures and mitigations to limit unavoidable adverse impacts. The analysis is based on the best available data available including site-specific data collected on Avian and Bat Species associated with the project area, 100% coverage cultural resource inventories, hydrology studies, and visual contrast analysis. The BLM NEPA Handbook states, "If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the 'significance' of environmental impacts; it provides a basis for rational decision making."
77	26	NEPA	46	6	The attempts to place overwhelming emphasis on the now-outdated Wind PEIS. Significant new scientific info about adverse effects on biological resources, humans and human health, and the toll taken on resources from wind facility and apparatus manufacture and placement is now known. For example, the Wind PEIS allows placement of MET towers under minimal NEPA - despite the fact that that placement of MET towers may significantly lessen grouse use of any area - thus ruining any valid biological baseline or understanding of wind facility impacts. In fact, this may be the case here. Plus increased scientific info on the effects of noise, how wind turbines kill bats or other volant species, flicker effect, fires caused by turbines, toxic materials used in and mined for turbines, the large-scale losses in sagebrush and other wildlife that now have heightened concerns over species endangerment, and much other significant new info is now available. BLM must also consider the growing outcry from human residents exposed to industrial wind farm noise and other effects as these facilities have been built in inappropriate places. The laundry list of Wind PEIS BMPs are now known to be greatly inadequate to protect rare native biota, plus they are not binding, and time after time are termed as "should", not the binding "shall".	The BLM does not rely solely on the analysis in the Programmatic Wind EIS. The preliminary EA appropriately tiers to the PEIS and provides site-specific analysis based the best available information on wind energy technology, recent studies, and on data collected specifically for the Spring Valley Wind project.

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55	26	NEPA	46	6	The EA forsakes the necessary "hard look" under NEPA. It basically punts to the future - expecting the public to have blind faith in highly uncertain adaptive management, mitigation, and monitoring. BLM ignores the severity of impacts. BLM cannot authorize this project based on minimal data on the majority of biological, cultural, visual, recreational, aquifer/watershed - and other resources. It is absurd for a company (SVW Pattern Carlyle Group) to be allowed to invest several hundred million dollars - or a billion - or more - and not have solid upfront data to determine of the impacts will be biologically unacceptable.	The Preliminary EA describes the site-specific impacts to potentially affected resources and includes an alternative that avoids sensitive resources, as well as extensive resource conservation measures and mitigations to limit unavoidable adverse impacts. The analysis found in Chapter 4 of the Preliminary EA is based on the best available data.
78	26	NEPA	48	6	Mitigation is greatly inadequate. Mitigation by avoidance has been wrongly discarded. The EA relies on programmatic mitigation measures with no proof that they will alleviate impacts to any significant degree. Since there is no valid Baseline, the full degree and severity of effects, and the degree of necessary mitigation, cannot be understood and properly applied.	Project mitigations are included to reduce adverse impacts before operations begin and to respond to incidents as they occur after operations begin. Mitigations from the PEIS and the BLM Ely RMP are included as well as project-specific mitigations and Resource Conservation Measures described in Section 2.1.4 of the Preliminary EA. Avoidance measures were implemented in site layout and as part of the alternative action. Monitoring will evaluate the effectiveness of mitigation measures and allow for changes to occur as necessary to ensure impacts do not reach a level of significance.
56	26	NEPA	48	6	The Project's programmatic and site-specific mitigation and adaptive management will never be adequate to prevent or address severe impacts where they occur. It is an outrage to expect U.S. taxpayers to provide stimulus funds to finance/subsidize a likely biological disaster. This is highly controversial, as well.	Project mitigations and the Avian and Bat Protection Plan (ABPP) are included to reduce adverse impacts before operations begin and to respond to incidents as they occur after operations begin. Mitigations in the ABPP would be based on species-specific mortality thresholds and include the ability to shut down turbines for a maximum of 37,500 turbine hours.
33	27	NEPA	10	7	Any post-construction monitoring reports that includes wildlife, cultural, and water resources must be provided to the CTGR for review and comment, as it is critical for our tribe to be informed of the continued impacts or restoration that affect our people.	Any monitoring reports prepared will be available directly from the BLM Ely District Office.
1	27	NEPA	40	6	The Confederated Tribes of the Goshute Reservation feels that a decision to prepare an EIS at this point is required because the project stands to have significant impacts on the human environment, Executive Order 13212 requires that new energy development be accomplished in a safe and environmentally sound manner for the well-being of society, and similar-sized projects have required EISs rather than EAs.	The analysis in the SVWEF EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The Preliminary EA also identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts. Other similar wind projects have also been approved by the BLM based on analysis in an Environmental Assessment tiered to the Wind PEIS, such as the Milford, Utah, wind project.
25	27	NEPA	41	6	Design and layout alternatives for the SVWEF are essentially not part of this Draft EA, but must be included given the high-level impacts on cultural and wildlife resources that are likely to occur.	The Preliminary EA includes an alternative layout for analysis. The BLM will consider the impacts of each of the alternatives before selecting a final preferred alternative in the Final EA.
26	27	NEPA	41	6	The USFWS provided several guidelines in 2003 to avoid or minimize impacts to wildlife from wind turbines, including avoidance of habitat fragmentation, placement of energy facilities on previously disturbed lands rather than on healthy native habitats, placement of wind turbines <5 miles from sage grouse lek sites, avoid designs that encourage wildlife use for roosting or nesting or perching, and placement of electrical transmission lines underground. While the CTGR can appreciate that several design features reduce wildlife perching, roosting, or nesting, several design feature for the SVWEF are still needed to avoid impacts. We suggest the following at a minimum: 1) decrease the width of roads to the minimum possible and place wider sections of road only where absolutely necessary; 2) place electrical transmission lines underground; 3) place turbine pads and WTG on land areas that have been previously disturbed from grazing, fire, or otherwise; 4) use the minimum possible amount of water from local surface, spring, and groundwater sources.	In response to your comments: 1) as described in Section 2.12.1.2.6 of the Preliminary EA, permanent road width would only be 28 feet; 2) as described in Section 2.1.1.2.7 of the Preliminary EA, the 34.5-kV collector system would be installed underground and the project would connect to an existing transmission line; 3) as described in Section 2.1.1.1 of the preliminary EA, only 0.3% of the 8,565-acre project area would be disturbed by the turbine pads; 4) as described in Section 4.5.2.2.1 of the Preliminary EA, only 15.3 to 30.7 total acre feet of water would be necessary for construction (0.44% of the total annual groundwater discharge in Spring Valley). Water use during operation would be limited to dust control.
2	27	NEPA	46	6	The BLM has failed to carefully evaluate all potential environmental impacts of the proposed project, and the CTGR has found that: Cultural resource impacts will be greater than what is stated in the Draft EA; Visual resource impacts will be greater than what is stated; Wildlife resource impacts will be greater than is stated; Project alternatives (including design/layout alternatives) are not sufficient; and Mitigation measures are not sufficient for cultural, visual, and wildlife impacts.	The EA presents the anticipated environmental consequences based on best available data, including site-specific data collected for wildlife, cultural inventories, and visual contrast analysis. The EA also includes extensive resource conservation measures in Section 2.1.4 and mitigation measures in Chapter 6.
7	27	NEPA	46	9	Impacts from construction, operation and maintenance of the SVWEF on cultural and spiritual resources under both the Proposed Action and the Alternative Development Alternative are overly vague and nonspecific to particular resources.	Sections 4.6 and 4.7 of the Final EA have been revised to include more detailed information specific to the project location and the site-specific consultation, studies, and inventories completed regarding cultural resources and Native American religious concerns.
27	27	NEPA	48	6	SVWE proponents should be required to submit to the BLM, and the public, plans that adhere to the above mitigation measures and the CTGR should have the opportunity to comment and review those plans to make sure that cultural, spiritual, and wildlife resources have the best possible mitigation and protection.	All plans prepared to address specific resource concerns were made available to the public as appendices to the Preliminary EA during the public comment period.

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7	28	NEPA	40	6	NEPA requires federal agencies to prepare an EIS for all "major federal actions significantly affecting the human environment." 42 U.S.C. §4332(2)©. To avoid preparing an EIS, an agency must make a FONSI after preparing an EA. See 40 C.F.R. §§1501.49(c), 1508.9. An EA must contain sufficient information and analysis to determine whether the proposed action is likely to have significant impacts, thus requiring preparation of an EIS. See 40 C.F.R. §1508.9. "If the agency... opts not to prepare an EIS, it must put forth a 'convincing statement of reasons' that explain[s] why the project will impact the environment no more than insignificantly." Ocean Advocates v. U.S. Army Corps of Eng'rs, 402 F.3d 846, 864 (9th Cir.2005). "[A]n EIs must be prepared if substantial questions are raised as to whether a project may cause significant degradation of some human environmental factor." Wetlands Action Network v. U.S. Army Corps of Engineers, 222 F.3d 1105, 1119 (9th Cir. 2000).	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment (EA) is tiered to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The Preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the “significance” of environmental impacts; it provides a basis for rational decision making.
2	28	NEPA	40	6	Unmitigated impacts to sage-grouse and visual resources, even under the Alternate Development Alternative, have the potential to cause significant impacts and require the preparation of an EIS.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant." In addition, Section 6.8.4 of the BLM NEPA Handbook states in part, "Mitigation measures can be applied to reduce or eliminate adverse effects to biological, physical, or socioeconomic resources. Mitigation may be used to reduce or avoid adverse impacts, whether or not they are significant in nature." The PEA has proposed mitigation as found in Chapter 6.
4	28	NEPA	42	6	SNWA has no objection to the development of wind energy projects per se, but does have concerns with the National Environmental Policy Act ("NEPA") evaluation process, including commensurate with requirements on other projects.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative.
6	28	NEPA	42	7	Review/approval of the wind energy project should not unduly affect other projects proposed in Spring Valley, including SNWA's GWD Project. In particular, SNWA supports BLM's implementation of the Alternate Development Alternative as its final decision. The alternative will provide greater protection to wildlife resources than the originally proposed action and reduce noise impacts to SNWA's staff and contractors living at the Bastian Creek Ranch.	The BLM will evaluate all impacts of the alternatives before selecting a final preferred alternative.
22	28	NEPA	42	9	SNWA's GWD Project is identified as one of the reasonably foreseeable actions that will result in further mortality to bats. Draft EA, at 137. As SNWA made clear in its comments on the December 2009 Draft EA, the GWD Project pipelines will be buried and are not anticipated to cause impacts to bats. SNWA Letter to Mr. McGiffert, BLM Ely Field Office, Comment 70 (Jan. 14, 2010). The analysis should be revised to reflect this fact.	The final EA has been revised. The reference to SNWA's GWD Project has been removed from the reasonably foreseeable future actions in Section 5.2 - Special Status Species when describing cumulative impacts to bats.
20	28	NEPA	42	9	The cumulative impact analysis for individual resources identifies impacts on the basis of the amount of SNWA's GWD Project's land disturbance, but fails to describe the connection between the quantity of land disturbance and the actual resource impact. For example, under Chapter 5.8 Noise, Draft EA at 141, the development of 462 acres as part of the SNWA GWD Project is identified as contributing to an increase in noise levels, but the analysis does not describe how that quantity of land disturbance actually contributes to noise.	Chapter 5 - Cumulative Impacts analysis in the final EA has been revised to better define the connection between a project and a resource impact for each of the individual resources.
1	28	NEPA	46	6	SNWA's primary concern remains that the EA is inadequate to support a finding of no significant impact ("FONSI").	The Preliminary EA identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts to a less than significant level. If it is unclear whether the action would have a significant effect, an environmental assessment should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the “significance” of environmental impacts; it provides a basis for rational decision making."
5	28	NEPA	46	6	SNWA has no objection to the development of wind energy projects per se, but does have concerns with the National Environmental Policy Act ("NEPA") evaluation process, including to reduce potentially significant environmental impacts.	The Preliminary EA identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts to a less than significant level.
3	28	NEPA	48	6	SNWA has no objection to the development of wind energy projects per se, but does have concerns with the National Environmental Policy Act ("NEPA") evaluation process, including development of adequate mitigation measures.	The Preliminary EA identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required.

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1	29	NEPA	40	6	Using an EA for a large scale wind energy project, whether or not there is a PEIS, is a clear violation of NEPA. A wind energy project of this scale, covering 8,500 acres, is a major federal action and will entail significant impacts. These include ground disturbance associated with construction, water resources impacts, impacts to birds and bats, cultural resource impacts, and others. Sierra Club strongly disagrees with using an EA for any large scale renewable energy project, whether or not it is a "fast track" project.	The analysis in the SVWEF EA tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS and a project specific EIS is not required. Section 5.2.2 of the BLM NEPA Handbook states: "Tiering to the programmatic EIS would allow the preparation of an EA and FONSI for the individual action, so long as the remaining effects of the individual action are not significant." If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
5	29	NEPA	40	6	We strongly disagree with the Finding of No Significant Impact and insist that the BLM undertake a full EIS in order to comply with the requirements of NEPA.	The BLM has released the unsigned draft FONSI for public comment consistent with Section 8.4.2 of the BLM NEPA Handbook H-1790-1. In addition, If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)).The BLM is consistent with the requirements of NEPA and of the BLM NEPA Handbook by preparing an Environmental Assessment that tiers to the Programmatic Wind EIS. As the BLM Handbook describes in Chapter 8, "An environmental assessment is a tool for determining the 'significance' of environmental impacts; it provides a basis for rational decision making."
11	29	NEPA	41	6	Among the alternatives should be other sites on public land, particularly one much farther from the Rose Guano Cave, as well as a distributed generation alternative.	Alternate project locations were considered as described in Sections 2.5.1 and 2.5.2 of the Preliminary EA. The project area is currently 4 miles from Rose Guano Cave. An alternate location farther from the cave would not necessarily reduce potential impacts to the Brazilian free-tailed bats, and may result in greater impacts to other resources such as greater sage-grouse resulting from the need for a new transmission line to be installed. A distributed generation alternative would not meet the purpose and need for action. Additionally, the BLM does not have the authority to make a decision on distributed generation.
10	29	NEPA	41	6	The EA does not comply with NEPA requirements for a full range of alternatives. An EIS should list at least three more alternatives. The Alternative Development Alternative still would disturb the hydrological resources of the Swamp Cedars Area of Critical Concern, disrupt connectivity for pronghorn antelope, remove habitat for the sage grouse and pygmy rabbit, still kill many raptors and passerines, and still potentially destroy the population of Mexican free-tail bats in the Rose Guano Cave. We are surprised that the EA fails to identify an alternative in a different location, as this is a clear requirement of NEPA.	The BLM elected to include an alternative for analysis to address potential conflicts with sensitive biological, cultural, and Native American conflicts. An analysis of both action alternatives, as well as the No-Action Alternative, is presented in Chapter 4 of the Preliminary EA. Additionally, turbine shutdowns are included as a mitigation described in Appendix F - Avian and Bat Protection Plan, of the Preliminary EA. Starting in phase II, there can be up to 15,000 turbine hour shutdowns to mitigate for potential avian and bat mortalities. This goes up to 37,500 turbine hours shutdown in phase V.
3	30	NEPA	40	6	The park believes that an environmental impact statement (EIS) should be prepared.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative. If it is unclear whether the action would have a significant effect, an environmental assessment (EA) should be prepared (40 CFR 1508.9(a)). An environmental assessment is a tool for determining the "significance" of environmental impacts; it provides a basis for rational decision making.
16	30	NEPA	40	6	GRBA continues to believe, as has been noted in this and our letter of June 11, 2010, that a FONSI is not justified and that the preparation of an EIS to adequately analyze, minimize, mitigate and disclose the full impacts of this and future projects in the area is required. While Federal regulations might allow the release of a draft FONSI prior to public comments on the EA, as it appears to predispose the final outcome of the environmental assessment.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment (EA) is tiered to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The Preliminary EA also identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts to a less than significant level. The BLM has released the unsigned draft FONSI for public comment consistent with Section 8.4.2 of the BLM NEPA Handbook H-1790-1.
15	30	NEPA	42	6	The cumulative impact of all reasonably foreseeable actions in Spring Valley will total over 30,000 acres affected and is likely to significantly impact natural and cultural resources on lands administered by the National Park Service. The cumulative impacts of what appears to be the industrialization of Spring Valley have not been adequately analyzed nor disclosed in this EA. GRBA recommends that the BLM require the preparation of an EIS containing all reasonably foreseeable actions proposed for Spring Valley.	The proposed project occurs entirely on lands managed by the BLM Ely District Office, and there would be no direct change to natural and cultural resources on lands administered by the National Park Service. The preliminary EA does disclose the indirect impacts to the landscape and setting adjacent to the Great Basin National Park and impacts to its visitor that would occur as a result of the proposed project. Table 5.0-1 of the cumulative impacts analysis summarizes the past, present, and reasonably foreseeable future actions that are considered for cumulative impacts. The reasonably foreseeable future actions considered in this EA are those that are in planning stages with a reasonable expectation of occurring over the anticipated life of the project.
1	30	NEPA	46	9	The park provided written comments to your office on January 4, 2010 and June 11, 2010 relevant to this project. While the EA addresses many of the issues raised, the park believes the document still does not adequately disclose impacts to park resources and values including views; night skies; cultural resources; biological resources; and the cumulative impact of additional projects.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative. Additionally, an analysis of dark skies has been completed and included in the EA.

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2	30	NEPA	48	6	The park believed that a FONSI is not justified, additional mitigation measures are warranted.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment (EA) is tiered to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The Preliminary EA also identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts to a less than significant level.
1	31	NEPA	40	6	We refer to and re-state our objections submitted January 15, 2010 and note that second EA has not adequately addressed the proximity of federally designated and protected national park land, nor the value of views the Spring Valley WGF will have on approach and from within the park, nor the area's notable dark sky resources. NPCA notes that these salient points have not been addressed in the Preliminary EA, and urges the Bureau of Land Management to prepare an Environmental Impact Statement, based on NEPA requirements that an EIS must be prepared if a proposed project has potential to cause significant environmental impact and if significant controversy exists. In this case, we believe both occur.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. Sections 4.8.2.3 and 4.8.3.2 of the Final EA have been revised to incorporate a site-specific analysis of the effect of the alternatives to the dark sky resources of the National Park. The Preliminary EA also identifies extensive resource conservation measures in Section 2.1.4.3 and mitigation measures in Chapter 6, including all those measures identified in the BLM Wind PEIS that would be required to reduce potential impacts to a less than significant level.
9	34	NEPA	10	9	7.2 Persons, Groups, and Agencies Consulted: The Ely Shoshone Tribe is not listed.	The Ely Shoshone Tribe has been added to Section 7.2 of the Final EA.
11	34	NEPA	40	7	This project needs to move to an EIS because there are missing elements to the EA.	The analysis in the Spring Valley Proposed Wind Energy Facility Project Preliminary Environmental Assessment tiers to the BLM Wind Energy Development Programmatic Environmental Impact Statement consistent with the BLM's National Environmental Policy Act Handbook H-1790-1 and IM 2009-043 on implementing the Wind PEIS. The preliminary EA provides site-specific detailed analysis of the impacts of the proposed action and alternative.
9	21	NO	11	7	Large wind turbines can cause noise.	The impacts of noise form Wind Turbine Generators are described in Section 4.9 of the Preliminary EA.
54	26	NO	11	6	Again here, where is the site specific data over all seasons of the year and all weather conditions? How will turbine and all other project noise increase these levels? What will be the adverse effects on biological. Cultural and recreational uses?	The impacts of noise from the construction and operation of Wind Turbine Generators are described in Section 4.9 of the Preliminary EA. The impacts of noise on wildlife are described in Sections 4.2.2, 4.2.3, 4.3.2, and 4.3.3 of the Preliminary EA.
81	26	POD	12	6	How does military chaff interfere with radar? Does dust interfere with radar? Does military training occur over this airspace, and if so may that in any way (other than discharge of chaff) interfere with radar? Also note that chaff may drift considerable distances from where it is discharged. There are far too many criteria to be met before any real action occurs. See Appendix F - If the radar system is used, "any time the … system detects a group of birds or bat activity (determined through a year of radar studies) within approximately 1/4 mile of the project area coupled with low visibility for birds. This means: Tremendous mortality can occur for a full year without anything happening. The distance is much too close - especially given the high speeds, wind speeds, etc. that this area may experience. Why is there a whole combination of events? Why isn't just one of these a trigger to shut the whole ill-sited facility down. This whole system is fraught with uncertainty - it appears that there is no certainty how far out species will be detected.	Chaff is a countermeasure used by military aircraft that acts as decoy for radar. Chaff is used within Military Operations Area (MOA) during training exercises, which would be an infrequent occurrence over Spring Valley. The Avian and Bat Protection Plan includes adaptive management techniques to ensure that potentially significant levels of mortality from the Spring Valley Wind Facility are effectively mitigated. The Radar and Curtailment program are only one element of possible mitigation. In the event that mortality thresholds are exceeded, additional mitigation phases (including turbine shutdowns) may be implemented; there would be no year-long waiting period.
26	26	POD	12	6	Impacts of the host to determine how tall these towers will be? Will they all be 400 foot tall towers? How many will be? What height of tower was used in the visual analysis? How do noises differ between tower type/size/height? Are there differing biological impacts with different tower heights? If so, what are they? How does this affect any monitoring or mitigation? What is tower visibility (all types of foreseeably used towers) from leks? Wintering areas?	There would be 75 Wind Turbines installed under each alternative. Each turbine would be up to 418 feet tall including the turbine rotors. Section 3.1 of the Visual Resource Assessment describes the number and height of turbines used for the Visual Simulation. Section 4.8 of the Preliminary EA provides a description of the impacts to visual resources from both alternatives. Section 4.9 of the Preliminary EA provides a description of the impacts from noise.
6	29	POD	12	6	The EA implies that the overall footprint of the project would be less than significant because of a total of "448 acres of disturbance". This statement is misleading from an ecological perspective and does not reflect current scientific understanding of ecological processes. New roads, electric lines, substations, underground electrical collection systems, etc. will be obstructions to wildlife habitat and connectivity in this region. Further, impacts to birds and bats, if in migratory corridors, can be many magnitudes higher than even the full acreage of 8,500 acres.	The preliminary EA does not limit its description of impacts to the direct loss of acreage from the proposed Spring Valley Wind Facility. In addition to quantifying the direct loss of habitat associated with the proposed action and alternative action, the impacts of invasive species, risks of mortality, erosion and runoff, noise, and interference with behavioral activities are described for wildlife species in Sections 4.2 and 4.3.
3	33	POD	12	7	The link didn't show very much information, but did state that they would use an existing transmission line. In case they determine that additional transmission or distribution lines might be needed I'd like to note that only transverse crossing, with poles and other appurtenances being located outside NDOT R/W, are routinely approved as encroachments. Also, any overweight/over dimensional equipment and supplies needed for construction or operation will require the appropriate NDOT permit.	Comment noted.
22	14	REC	51	6	We believe that the preservation of this open space for scenic value and wildlife preservation has a more sustainable recreational value to the community and other public land owners than a wind project that will produce a questionable amount of energy and create so few jobs in the long run. If the project is developed, how much public land would be off limits to the public?	Less than the overall footprint of the project, or approximately 100 acres, would be off-limits to the public during operations. The access roads associated with the project would be open to the public during operations. There would be no loss of developed recreation sites or trails as a result of the project. The entire project area is only 1% of the Game Management Unit defined by NDOW.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
9	16	REC	50	9	The FONSI downplays the context of this project by stating that it is in a sparsely inhabited area and that the primary economic activities are ranching and mining. The project is neighbor to the Great Basin National Park, an area valued for its remoteness, primitive recreational experiences, and scenic vistas.	The context section of the FONSI has been revised to describe the proposed project's proximity to the Great Basin National Park.
32	27	REC	13	8	OHV impact on wildlife and cultural resources can be substantial and the CTGR encourages any restrictions and prohibitions of OHV activity near the proposed project site.	OHV use on BLM land is determined through the BLM RMP and is currently limited to designated roads and trails in Spring Valley.
2	19	RN	14	7	Grazing in this part of the country is not ideal and should not be a major consideration when making a renewable energy determination.	There would be no reduction in AUMs on grazing allotments in the project area as a result of the proposed action.
21	28	RN	57	9	Under Chapter 5.3, Grazing Uses, Draft EA at 138, the entirety of SNWA's GWD Project disturbance is described as disturbing the Majors and Bastian Creek grazing allotments. Only a part of SNWA's Spring Valley lateral overlap with those grazing allotments, and this statement should be corrected to reflect that amount of disturbance.	The acreage associated with the SNWA GWD project within the two grazing allotments has been revised to reflect the correct amount of disturbance in Section 5.3 of the Final EA.
45	16	TRAN	15	7	The EA envisions a network of up to 27.8 miles of access roads, taking up 95 acres of currently undisturbed land, for the operation and maintenance of the proposed wind facility. Road disturbances may be up to 68 feet wide during the construction phase, and the EA states that they would be reduced to 28 feet wide, including ditches, after construction is completed. The Center has several concerns regarding this travel network. First, the final width of 28 feet seems excessive and the Center suggests that lateral roads be constructed to single-lane with turnout standards to minimize the long term disturbance and impacts.	All project roads incorporate existing BLM standards regarding road design, construction, and maintenance as described in the 2005 PEIS/ROD (BLM 2005).
47	16	TRAN	15	8	The EA envisions a network of up to 27.8 miles of access roads, taking up 95 acres of currently undisturbed land, for the operation and maintenance of the proposed wind facility. Road disturbances may be up to 68 feet wide during the construction phase, and the EA states that they would be reduced to 28 feet wide, including ditches, after construction is completed. The Center has several concerns regarding this travel network. There is no mention of if off-road vehicle use will be prohibited or discouraged. The Center requests that all wind facility roads be formally and legally closed to public travel and that appropriate measures be incorporated into the facility design to facilitate this restriction. Off-road use is inappropriate given the critical nature of the area to sage grouse, pygmy rabbit, and pronghorn antelope (crucial winter habitat).	OHV use on BLM land is determined through the BLM RMP and is currently limited to designated roads and trails in Spring Valley.
7	16	TRAN	15	9	The FONSI downplays the context of this project by stating that it is in a sparsely inhabited area and that the primary economic activities are ranching and mining. It neglects to mention that the project lies aside a major U.S. highway that is a National Heritage Route.	The context section of the FONSI has been revised to describe the proposed project's proximity to U.S. Highway 50. A description of the Great Basin National Heritage Area has been included in Section 3.6 of the Final EA.
15	17	TRAN	15	6	There will be 28.7 miles of new roads constructed within the project area. The BLM needs to address the long term effects of increased public access across this area and to the western edge of the ACEC created by these roads.	Section 4.6.1.1 of the Preliminary EA summarizes the Wind PEIS and states: "Other indirect impacts include increased access to the area, which could result in looting, vandalism, and inadvertent destruction of cultural resources."
5	26	TRAN	15	7	The construction of 28 miles of road in this fragile desert valley in and of itself clearly necessitates an EIS. There will be severe soil, microbiotic crust, native vegetation, wildlife habitat and other loss and disturbance in this action alone.	95 acres, or 1.1% of the project area would be disturbed from long-term access roads associated with the project. This is a negligible amount of disturbance relative to the project area and to the Spring Valley Watershed.
2	33	TRAN	15	7	The proposal indicates that an access/haul road will be constructed across this NDOT material site right of way. Permission to construct an access road across the material site NEV055079 will probably require permission and coordination with the NDOT Right of Way Division. Please contact Halana Salazar at (775)888-7470	All necessary permits will be obtained prior to a Notice to Proceed being issued.
2	3	VR	36	6	We are concerned about the lighting systems on the turbines throughout the project and how that will affect the peace and solitude presently in the valley that we and other plan to live.	A description of the impacts to night skies is included in Sections 4.8.1.2, 4.8.2.3, and 4.8.4.2 of the Preliminary EA. A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA.
4	3	VR	36	7	We have found that there are lighting systems for wind turbines that are only activated when there are aircraft in the area, this seems like a reasonable upgrade that should be given some consideration.	Lighting is regulated by the Federal Aviation Administration. The FAA is in the process of approving that system but it is at a minimum of 6 months away from being approved and then the Federal Circular Advisory would need to be revised. If this lighting system is available by the time the project is installed, the applicant will look further into the feasibility of installing such system.
7	4	VR	35	9	It will have devastating impacts to the viewsheds of Great Basin National Park and Mt. Moriah Wilderness Area.	The impacts to visual resources are described in Sections 4.8.2, 4.8.3, and 4.8.4 of the Preliminary EA. A description of the views from Mount Moriah has been added to Section 3.8.1 of the Final EA.
1	9	VR	35	6	I am shocked at the proposed Spring Valley Wind Project, to be situated prominently in full view of Great Basin National Park. As you know the GBNP Act of 1986 specifically includes " the views of the surrounding lands from GBNP." The view into Spring Valley from all along the ridge of the South Snake Range is totally integral to the Park experience, and not at all confined to those who climb Wheeler Peak. Furthermore, visitors approaching from the west are invariably thrilled by wide, beautiful Spring Valley sweeping up to the intricate formations and profiles of the massive peaks of the Park. It is unthinkable to plant an industrial development at the foot of such magnificence.	The impacts to visual resources are described in Sections 4.8.2, 4.8.3, and 4.8.4 of the Preliminary EA. The visual aesthetics of the wind farm is subjective and as described in the EA Section 4.13.2.2, in at least some cases wind farms have led to increased visitation in areas.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
2	11	VR	35	6	In addition, the project conflicts with Nevada's only national park, whose unique and irreplaceable treasures include its viewshed, which would be compromised.	The impacts to visual resources are described in Sections 4.8.2, 4.8.3, and 4.8.4 of the Preliminary EA.
3	11	VR	36	6	In addition, the project conflicts with Nevada's only national park, whose unique and irreplaceable treasures include its dark skies, which would be compromised.	A description of the impacts to night skies is included in Sections 4.8.1.2, 4.8.2.3, and 4.8.4.2 of the Preliminary EA. As stated in Section 4.8.2.3: "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
5	14	VR	16	6	The project will also degrade the remote visual character of Spring Valley.	The impacts to visual resources are described in Sections 4.8.2, 4.8.3, and 4.8.4 of the Preliminary EA.
19	14	VR	16	8	Basin and Range Watch differs with BLM's designation of the site as only a VRM Class III area. As you may know, this part of Spring Valley was originally intended to be part of Great Basin National Park. Many people have commented on our website that they feel that Spring Valley is one of the most scenic and remote places left in the west because it is one of the most unspoiled basins left in Nevada. We believe that the BLM is misrepresenting the view of the public, by only designating the VRM for the area as "Class III".	The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008. Great Basin National Park was a cooperating agency on that Environmental Impact Statement.
20	14	VR	60	6	First, the Google Earth Key Observation Point Simulations are inadequate. There simulations do not capture lighting and actual features. A new Visual Resource Management Assessment should exclude all Google Earth Simulations. Second, the existing KOP simulations display a "lighting bias". KOP's 1, 2 and 3 should be broken down into 3 photos each, representing morning, afternoon, and evening. There should also be KOP's of the same views representing lighting and contrast from Summer and Winter seasons. At least 6 additional KOPs are needed: At least two KOP's should be provided from the Mt. Moriah Wilderness Area; At least one KOP should be provided from a scenic vantage point in the Schell Creek Range; At least one KOP should be provided representing the flashing red lights at night time; Two KOP's should be provided closer to the project with at least one taken from the Swamp Cedars Area of Critical Environmental Concern.	As described in Section 3.8.1 of the Preliminary EA, the primary public views of the project area are from travel routes and not from static observation points. KOP 3 is also representative of views from the Bastian Creek Ranch. Wheeler Peak is included because of its location within the park and greater sensitivity to changes in the landscape. The project is not visible from residences at Sacramento Pass, Cleve Creek Campground, Majors Junction. The five KOPs serve as representative viewpoints surrounding the project area. An assessment of the visibility of the project from the Mt. Moriah Wilderness and the Schell Creek Range has been added to Section 3.8.1
48	16	VR	16	8	A Visual Resource Inventory was conducted on behalf of the BLM for the proposed project area encompassing an 11-mile radius. Given the Congressional designations found within and adjacent to the proposed wind project, which emphasize and highlight the areas scenic and natural qualities and features, it is hard to rationalize how the BLM could derive a Level III management objective for the area. Class I objectives which "preserve the existing character of the landscape" and mandate that "change to the characteristic landscape should be very low and must not attract attention" and Class II objectives which "retain the existing character of the landscape" are far more appropriate classifications for an area this close to a national park that was established in part to preserve its "scenic values". The proposed project would instill a totally unnatural and industrial aspect into the landscape and viewshed that is currently not even remotely found there. The addition of this context, aside from and in addition to the raw visual intrusion of 400+ foot wind turbines and their associated infrastructure would seriously and significantly disrupt the current scenic qualities and experiences expected by visitors to the Great Basin National Park and travelers on the Highway 50 National Heritage Route	The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008.
20	16	VR	35	6	The National Park Service, the National Park Conservation Association many users of the Great Basin National Park, myself among them, have grave concerns regarding the impacts to the primitive and backcountry experiences and values. These concerns arise from the visual impacts of the proposed project as seen from GBNP, including the glare off the towers and their blades.	The Preliminary EA does include a Key Observation Point from Wheeler Peak within the park to disclose impacts to the views from within the park. Glare from modern WTGs is minimized as a result of the non-reflective materials used for their fabrication.
8	16	VR	35	9	The FONSI downplays the context of this project by stating that it is in a sparsely inhabited area and that the primary economic activities are ranching and mining. The project is neighbor to the Great Basin National Park, an area valued for its remoteness, primitive recreational experiences, and scenic vistas.	The context section of the FONSI has been revised to describe the proposed project's proximity to the Great Basin National Park.
49	16	VR	60	7	In addition, the visual inventory and assessment are seriously flawed by including only one view point located in the park, that being the top of Wheeler Peak. There are numerous viewpoints of the proposed wind project along the Wheeler Peak Scenic Drive that should have also been evaluated, as they receive much more visitation than the peak itself.	There are no locations along the Wheeler Peak Scenic Drive where Spring Valley is visible.

Table H.4. Comment Response Table

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12	17	VR	35	6	The other "management plans" listed in Section 2.7 do not list the Great Basin National Park as a one considered. As quoted in the EA "GBNP was created by the Great Basin National Park Act of 1986 'in order to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values, there is hereby established the Great Basin National Park.' In addition to the outstanding scenery within the GBNP, the views of surrounding lands from GBNP contributed to the park visitors overall sense and understanding of the Great Basin. This KOP represents the views of visitors to the park, primarily those visitors climbing Wheeler Peak. The viewshed of GBNP is a vast area of largely undeveloped lands, almost 200,000 square miles of the Great Basin. Lands surrounding the GBNP are valleys and mountain ranges, including the Mount Moriah Wilderness to the north and the High Schells Wilderness to the west. The rugged horizon lines of those surrounding mountain ranges extend for miles to the north and south. The expansive valley floors are covered in tan, green, and gray grass and shrub lands, interspersed with darker green juniper trees. They are also crisscrossed with lighter toned dirt and paved roads and transmission lines. Visitors to the summit have clear panoramic views of the entire	The Great Basin National Park GMP is not included because it does not regulate actions on lands outside the park. The Preliminary EA does describe impacts to park resources including Visual Resources (Section 4.8), Noise (Section 4.9), Night Skies (Section 4.8), and Recreation (Section 4.12).
9	17	VR	35	6	Other issues include visual impacts to the nearby Great Basin National Park. The industrial aspect of the proposed facility will negatively deter from the park experience that all people expect for our National Parks.	The visual attractiveness of a wind farm is subjective. The impacts to visual resources visible from Wheeler Peak as well as the rest of spring valley are described in Section 4.8 of the Preliminary EA using official BLM methods and metrics.
10	17	VR	36	9	"Night Skies" are not addressed adequately. The park and surrounding valleys are some of the darkest in the nation. The public travels great distances to view these dark skies.	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
11	17	VR	60	6	We would like to point out that disturbance is calculated as a two-dimensional number. These towers are three-dimensional. The project area was moved south because of visual impacts to residents in Sacramento Pass. The BLM needs to calculate the vertical visual effects of flashing red lights at 450 ft above the ground. Has this been completed for the residents at Majors Junction or Osceola?	The viewshed delineation takes into account the height of the turbines including turbine blade rotations; not just the ground level location of proposed turbines.
3	21	VR	16	7	Large wind turbines are visually intrusive.	Comment noted.
12	21	VR	16	7	Spring Valley's land would eventually be scarred with abandoned wind turbines, as experienced in southern California.	A complete project restoration plan has been developed as shown in Appendix A. Further, the proponent will pay a bond to ensure that restoration can be completed.
1	22	VR	35	7	This, and solar, will litter the landscape of a pristine America if allowed to proceed. Look at Tehachapi, California, Texas, Idaho. I've seen those ugly monstrosities and they intrude on the beauty of the landscape.	Section 4.8 of the Preliminary EA provides an analysis of the impacts to Visual Resources from the proposed Spring Valley Wind Facility.
2	24	VR	16	9	Please not dramatic scenery and views of Wheeler Peak that will be destroyed by wind turbines, lights near dusk, etc.	Impacts to the landscape and night skies visible from Wheeler Peak are described in Sections 4.8.2, 4.8.2.3, 4.8.3, and 4.8.3.2 of the Preliminary EA. The visual simulation has been added to the EA to show the low visual contrast from Wheeler Peak.
52	26	VR	35	9	Wilderness Areas are found in the northern Snake Moriah and other areas - yet there is no analysis of the adverse visual or other effects on these areas from this facility. Many elements of the unique landscape are discussed throughout our comments, and are not adequately represented here.	Sections 3.8 and 4.8 of the Final EA have been revised to include descriptions of views from the Mount Moriah and High Schells Wilderness Areas, and the visual effects of the proposed Wind Energy Facility. Public Law 109-432 White Pine County Conservation and Recreation Act 2006, Section 325 Adjacent Management (b) states "Non-wilderness Activities-The Fact that non-wilderness activities or uses can be seen or heard from areas within a wilderness designated under this subtitle shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area."
53	26	VR	36	9	This section greatly underplays the national significance of the area, and the importance of the Dark Sky setting. Just how much lighting is there at the Cleve Creek campground? A couple camp fires in deer season? A Coleman lantern? This are is darker than the "typical rural sky", with only a few ranches. The EA claims the area "is assumed" to have a certain darkness character. Where are the quantitative studies over the course of the year?	In addition to Cleve Creek, Section 3.8.2 also refers to Bastian Creek Ranch, Majors Junction and the widely spaced residences simply as sources of artificial light. It goes on to describe Ely as the largest source of sky glow and the town of Baker. It concludes with the statement: "Because there are so few sources of light pollution, the night skies in the area of analysis and Great Basin National Park are some of the darkest skies in the continental United States." A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to better describe the existing conditions and to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
51	26	VR	60	6	The EA's KOP discussion provides little concrete info, and provides no basis for informed analysis. This is a unique well-watered undeveloped valley that provides a scenic backdrop for Great Basin National Park. In fact, potential expansion of the Park to include portions of the Valley would likely be killed by this SVW facility.	A description of the landscape character of the area is presented in Section 3.8.1 of the Preliminary EA, including views from within Great Basin Park on Wheeler Peak. The BLM is unaware of any potential expansion of Great Basin National Park.

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73	26	VR	60	6	BLM has failed to require Visual analysis that is commensurate with the unique, highly scenic world class scenic viewsheds. The Valley area contains critical backdrops to Great Basin National Park. It is likely to increase dust and light pollution in GBNP. The EA has only selected Wheeler Peak, and not other closer and scenic areas of the Park. BLM has also not examined this facility and its jarring and distracting visual impacts relative to many other important BLM and U.S. Forest Service land areas in the viewshed including Wilderness areas, important wild land use areas, the scenic ACEC, important cultural sites, etc.	As described in Section 3.8.1 of the Preliminary EA, the primary public views of the project area are from travel routes and not from static observation points. KOP 3 is also representative of views from the Bastian Creek Ranch. Wheeler Peak is included because of its location within the park and greater sensitivity to changes in the landscape. The project is not visible from residences at Sacramento Pass, Cleve Creek Campground, Majors Junction. Though there are many other view points that the SVWEF can be observed from, the five KOPs selected represent the major points that the casual observer would see the project. An assessment of the visibility of the project from the Mt. Moriah Wilderness and the Schell Creek Range has been added to Section 3.8.1.
74	26	VR	60	9	The Visual analysis fails to take into account the significance and vastness of the remote undisturbed area. It fails to fully consider the night time and night light effect, the effect of all the road scars and gashes, blowing dust from roads, "flicker effect", etc. All of this can also be distracting and dangerous to drivers. This is all greatly out of place on "the Loneliest Highway in America".	The landscape characteristics of Spring Valley are typical of the Great Basin and not considered unique. Although the area is largely undeveloped, it is not undisturbed, and visible modifications include U.S. 6/50, a power transmission corridor including several transmission lines, ranches, and historic mining activity. A description of the impacts to visual resources is presented in Section 4.8 of the Preliminary EA. All proposed turbines have appropriate setbacks and would not contribute to "flicker effect" to drivers or occupied structures in Spring Valley. In addition, a model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
75	26	VR	60	9	We are concerned that the very large turbines (400 ft.) to be used here are not accurately draw to scale in this analysis, and the cumulative effects of all the disturbance is not adequately examined. Smaller size turbines in areas of the Snake River Plain are visual intrusions over a distance of a dozen miles or more. The analysis in this EA is just not accurate - based on human observers in the real world. Plus what is the visibility from Sage Grouse leks, wintering areas, brood rearing areas, etc? This industrial development represents a gross ugly eyesore in an idyllic appearing desert valley right by Great Basin National Park. Ely BLM should consider alternatives to expand the ACEC and place much of the land of the valley in the most proactive VRM Category to protect recreation, tourism, wildlife, biodiversity and other important values of the public lands.	The Visual Resource Assessment referenced in Section 4.8.2.2 of the Preliminary EA provides accurate photographic simulations of the propose Wind Energy Facility from all of the Key Observation Points. These photo simulations have been added to Section 4.8.2.2 of the Final EA. Additionally, the impacts of the proposed facility on visual resources are described in Section 4.8.2.
10	27	VR	37	6	The BLM failed to use photomontages or simulations to provide realistic viewscapes of the proposed SVWEF and its likely visual impacts. These realistic viewscapes need to be illustrated in the EA, or potential EIS. Moreover, the visual impact analysis is suppose to illustrate "worst-case" conditions to the greatest extent possible. Excellent software is available for these relatively simplistic tasks and they provide the best possible visual impact assessments for wind projects like this. As is, the Draft EA and Figure 3.8-1 significantly downplay the actual visual impacts of the wind project's WTG and facilities.	Photographic visual simulations of the proposed Spring Valley Wind Facility are available in the Visual Resource Assessment as referenced in Section 4.8.2.2 of the Preliminary EA. A sample of these simulations have been directly incorporated into the Final EA.
13	27	VR	60	6	The Draft EA does little to describe the off-site visibility of the wind energy infrastructure. Impact descriptions are either vague, completely inappropriate, or insufficient for KOPs 1-4. The selection of KOPs on highways and their descriptions of impacts are inappropriate. Visual impacts are much greater if different non-roadway sites are selected for the visual impact analysis.	As described in Section 3.8.1 of the Preliminary EA, the primary public views of the project area are from travel routes and not from static observation points. KOP 3 is also representative of views from the Bastian Creek Ranch. Wheeler Peak is included because of its location within the park and greater sensitivity to changes in the landscape. The project is not visible from residences at Sacramento Pass, Cleve Creek Campground, Majors Junction. The five KOPs serve as representative viewpoints surrounding the project area.
12	27	VR	60	6	The 11-mile radius around the project area where visual resources and impacts were described in inadequate for the landscape context. Generally for wind energy projects, a 10-mile radius is the minimum from which impacts are described and detailed. However, given that the Basin and Range viewscapes are much greater than 11 miles, it stands to reason that a larger radius is more appropriate for the visual impact analysis.	The radius to describe visual impacts is not based on the size of the viewscape, but on the fact that visible contrasts are minimized with distance. Beyond 10 to 11 miles, visual contrasts are diminished. A larger radius would not result in different conclusions.
11	27	VR	60	6	The selection and description of Key Observation Points (KOPs) is flawed for several reasons. First of all, four of the five KOPs selected were located on roadways. KOPs normally focus on a variety of vantage points that are important areas of public use, beyond just roadways, such as recreation area, environmentally sensitive areas, trails and natural areas, historic sites or sites of cultural significance, and various other types of important scenic and cultural features. Second, while there is certainly merit to selecting KOPs that would be encountered by the greatest number of people, KOPs on roadways would be the obvious place in this landscape of the proposed project. Yet by selecting four out of five of the same type of KOPs, this Draft EA very specifically downgrades any potentially significant visual impacts on a variety of resources at a variety of sites around the project area. This calls into question the validity of the visual impact assessment and strongly indicates that potential adverse impacts to the human environment are likely to be significant.	As described in Section 3.8.1 of the Preliminary EA, the primary public views of the project area are from travel routes and not from static observation points. KOP 3 is also representative of views from the Bastian Creek Ranch. Wheeler Peak is included because of its location within the park and greater sensitivity to changes in the landscape. The project is not visible from residences at Sacramento Pass, Cleve Creek Campground, Majors Junction. Though there are many other view points that the SVWEF can be observed from, the five KOPs selected represent the major points that the casual observer would see the project. An assessment of the visibility of the project from the Mt. Moriah Wilderness and the Schell Creek Range has been added to Section 3.8.1.

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9	27	VR	60	9	Figure 3.8-1 provides a crude illustration of the visual impacts from the proposed project. Figures are suppose to be stand-alone items, but this figure and legend does not even provide simplistic definitions of the VRM Classes, greatly impeding an understanding of the graphic.	In addition to Figure 3.8-1, photographic visual simulations of the proposed Spring Valley Wind Facility are available in the Visual Resource Assessment as referenced in Section 4.8.2.2 of the Preliminary EA. These simulations have been directly incorporated into the Final EA.
16	28	VR	16	10	The SVW Project area is located within a Class III area for visual resource management as identified in the Ely RMP. The objective for management of Class III areas is to "partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominate natural features of the characteristic landscape." BLM Visual Resource Inventory Manual, H-8410-1, V.B.3. Contrast the objectives of Class III management with Class IV, which permits management activities to dominate the view and be the major focus of viewer attention. As SNWA explained in more detail in its comment letter on the December 2009 Draft EA, the SVW Project may not conform to the Ely RMP's Class III designation for the area.	The objective of Class III is to "partially retain the existing character of the landscape." Figure 3.8-1 shows a corridor of VRM Class IV objectives through the center of the project area. Section 3.8 of the Final EA has been revised to describe the transmission corridor through the center of the project area as Class IV - which allows for major modifications to occur. Additionally, because this is a landscape that has been modified by the presence of several large parallel transmission lines within that corridor, and a majority of views of the proposed facility would be against the backdrop of the valley floor, or surrounding mountain ranges, the conclusion that the proposed action is consistent with the objectives of VRM Class III has not changed. In addition, the project is also consistent with the Class IV objectives found through the center of the project area.
5	30	VR	16	6	The park's General Management Plan (GMP) and accompanying EIS addressed the lack of any valley bottom preservation standards by calling for interagency participation both early and upfront to allow the park the opportunity to review, comment and make recommendations concerning proposals that might affect the visual integrity of Spring Valley as well as shared Department of the Interior (DOI) natural resources. The Bureau of Land Management (BLM) was a cooperating agency for that GMP. A review of our administrative record fails to yield an initial scoping notice and our formal participation in this process began with the review of a preliminary EA.	This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008. Great Basin National Park was a cooperating agency on that Environmental Impact Statement. Additionally, representatives of Great Basin National Park were in attendance at a project stakeholder meeting facilitated by the BLM on Monday, October 20, 2008. As described in Section 7.3 of the Preliminary EA, that meeting provided the opportunity for stakeholders to get information, ask questions, and better understand the proposed project, what tasks had been completed, and what tasks remained.
6	30	VR	16	6	The valley is currently managed under a Visual Resource Management (VRM) Class III "to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the causal observer. Changes should repeat the basin elements found in the predominant natural features of the characteristic landscape." The park considers the existing primarily undisturbed or rural characteristics of the landscape to be of high value. While the VRM class might fit with the BLM's standards for management, the significant visual resource impacts affect all adjacent land management agencies whose needs should be disclosed, better understood and incorporated into any analysis.	This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008. Great Basin National Park was a cooperating agency on that Environmental Impact Statement. Section 4.8 of the Preliminary EA provides an analysis of the impacts to Visual Resources from the proposed Spring Valley Wind Facility including views from Wheeler Peak in the Great Basin National Park.
4	30	VR	35	6	Public Law 99-565 established Great Basin National Park (GRBA) for the purpose of preserving for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values. The views of and across the Snake and Spring Valley basins are important to park values. The visual impairment of the Spring Valley basin as a result of pervasive industrial development could alter the basin scene that adds a critical dimension to GRBA. These views are important in fulfilling the park's purpose, as identified in our enabling legislation, to preserver and interpret a representative segment of the Great Basin physiographic region. The EA fails to disclose that the project has the potential to adversely impact park scenic values in terms of context, intensity, and duration.	Impacts to the landscape and night skies visible from Wheeler Peak are described in Sections 4.8.2, 4.8.2.3, 4.8.3, and 4.8.3.2 of the Preliminary EA.
8	30	VR	35	9	The park supports the Best Management Practice's adopted for the protection of night skies, including reducing the numbers of lights, shielding those that are used, and utilizing the minimum amount of FAA required lighting at the tops of turbines. The park requests that the latest technology to minimize light pollution be employed and the timing of the lights on the turbines not be synchronized to reduce the impact. Spring and Snake Valleys as well as GRBA, currently reside in one of the darkest night sky areas remaining in the country and night skies are a key park value. The document does not attempt to quantify the cumulative impacts to night skies from the additional industrialization of Spring Valley due to the SNWA groundwater development project as well as the Nextera and Hamlin Valley Wind project.	The Best Management Practices for protection of night skies would be included as part of the final selected alternative. The Cumulative Impacts analysis has been revised to better quantify the effects of reasonably foreseeable future actions on night skies in the area.

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
7	30	VR	60	6	Page 113 of the EA states that "Impacts to visual resources associated with operation of a wind energy facility would result from the introduction of large WTGs into largely undeveloped and natural settings. Additionally, all aboveground structures associated with wind energy facilities (including fences around substations) would produce visual contrasts as a result of their typical physical characteristics (form, color, line, and texture) and reflective surfaces." Page 115 of the EA states that the "regular geometric forms and horizontal and vertical lines associated with the WTGs, substation, and access roads would result in a visual contrast with the irregular, organic forms, and colors of the existing landforms and vegetation." The very obvious addition of 75 turbines, 27 miles of new roads, and an electrical substation is not, to the park, a moderate level of change. This appears to be a significant contradiction of the VRM Class III that changes should repeat basic elements, not directly interfere with them. When the additional industrialization of Spring Valley from reasonably foreseeable projects (Southern Nevada Water Authority (SNWA) ground water development project, Nextera Wind Energy Development and the new Hamlin Valley proposed wind farm) are added it appears that these actions would dominate the view and would	The objective of Class III is to "partially retain the existing character of the landscape." Figure 3.8-1 shows a corridor of VRM Class IV objectives through the center of the project area. Section 3.8 of the Final EA has been revised to describe the transmission corridor through the center of the project area as Class IV - which allows for major modifications to occur. Additionally, because this is a landscape that has been modified by the presence of several large parallel transmission lines within that corridor, and a majority of views of the proposed facility would be against the backdrop of the valley floor, or surrounding mountain ranges, the conclusion that the proposed action is consistent with the objectives of VRM Class III has not changed. In addition, the project is also consistent with the Class IV objectives found through the center of the project area.
11	31	VR	16	8	Class I objectives which "preserve the existing character of the landscape" and mandate that "change to the characteristic landscape should be very low and must not attract attention" and Class II objectives which "retain the existing character of the landscape" are far more appropriate classifications for an area this close to a national park that was established in part to preserve its "scenic values".	The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008. Great Basin National Park was a cooperating agency on that Environmental Impact Statement.
9	31	VR	16	8	We challenge the BLM's classification of the area as a VRM Class III area - an area representing "moderate value." It is the opinion of NPCA that decision-making regarding this project should be elevated to Class I/Class II using the BLM's classification system based on the close proximity of a national park and its aforementioned unique values.	The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008. Great Basin National Park was a cooperating agency on that Environmental Impact Statement.
4	31	VR	35	6	In essence, Spring Valley Wind proposes to erect a stark, harsh-looking industrial facility in a scenic and pristine valley, within alarmingly close proximity to one of America's national treasures - Great Basin National Park.	The visual attractiveness of a wind farm is subjective. The impacts to visual resources visible from Wheeler Peak as well as the rest of spring valley are described in Section 4.8 of the Preliminary EA using official BLM methods and metrics.
15	31	VR	35	6	Viewpoints from Wheeler Peak are additionally significant. Spectacular views from the peak were chronicled as early as 1869, recorded as conquests of an imposing western landmark, and noted for exceptional visibility. Today, hikers of Wheeler Peak typically begin their ascent from a trailhead near Wheeler Peak Campground and follow a groomed trail that rises 3,000 from the campground to the summit. From the summit, hikers experience sweeping vistas of the Great Basin. Depending on weather conditions, visibility can extend for more nearly 90 miles. Views from Wheeler Peak, including those to the basin floor and views to the West, help the park visitor better understand the physiographic characteristics of a unique hydrologic basin and preserve human history of the area.	Wheeler Peak is identified as a Key Observation Point in Section 4.8 of the Preliminary EA. Because of extensive views and panoramic landscape visible from Wheeler Peak, the proposed Spring Valley Wind Facility is not expected to have an effect on park visitors' understanding of the physiographic characteristics of the area.
21	31	VR	35	6	The mission of Great Basin National Park, through the park's enabling legislation, establishes scenic significance and the National Park Service Organic Act requires that scenic resources be protected into perpetually - the assessment does not appropriately consider the mandate of the National Park Service, the value of scenic resources nor does it adequately evaluate impacts to them.	Because the NPS does not have authority over lands outside the park boundary, it is our understanding that the mission of the park to protect scenic resources in perpetuity is limited to those lands within the park boundary. The Preliminary EA does include a Key Observation Point from Wheeler Peak within the park to disclose impacts to the views from within the park.
7	31	VR	35	6	With visibility both during the day and night a major point of attraction for the park's nearly 70,000 visitors, the prospect of the construction and ongoing maintenance of a major wind power generation station in full view of park visitors must be questioned.	Section 4.8 of the Preliminary EA provides an analysis of the impacts to Visual Resources from the proposed Spring Valley Wind Facility including views from Wheeler Peak in the Great Basin National Park.
22	31	VR	35	8	BLM's Class III raking of visual resources within the area is not compatible with the scenic significance of the national park.	The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III/IV through the BLM RMP/ROD in 2008 in which the park was a cooperating agency.
5	31	VR	35	8	Spring Valley Wind attempts to locate a massive facility within view and close proximity of Great Basin based on the park's remoteness from urban areas but remoteness should not be a consideration that supports locating a WGF. Instead, Great Basin's remoteness should be a reason to not site an industrial complex in the area. Increasingly, with urban sprawl and the frenzied pace of contemporary life, remote areas become increasingly important. Visitors to Great Basin attest to the "get-away" attributes of the park.	The proposed location for the Spring Valley Wind Energy Facility is not based on the remoteness of the area, but on the existing wind resource (which is identified in the BLM Ely RMP), and the existing access to power transmission.
2	31	VR	35	9	The proposed project is located on approach to the national park and within view from several vantage points inside the national park, particularly from Wheeler Peak, Nevada's second highest mountain peak.	Wheeler Peak along with vantage points along Hwy 6/50 are identified as a Key Observation Point in Section 4.8 of the Preliminary EA. A simulation from Wheeler Peak has been added to the EA.
3	31	VR	36	6	Notably, the proposed location for the WGF is in an area identified with unusually dark skies, among the best in the lower 48 states in the continental United States.	A description of the impacts to night skies is included in Sections 4.8.1.2, 4.8.2.3, and 4.8.4.2 of the Preliminary EA.
26	31	VR	36	9	While the preliminary EA recognized the importance of rare and uncommon dark skies, a faulty numeric scale of a Class 3 ranking was assumed by amateur astronomers which diminishes the importance of this resource.	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to better describe the existing conditions and to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
19	31	VR	36	9	Night sky viewing is fast becoming a reason travelers visit Great Basin National Park. Park interpretive programs on night sky viewing have become increasingly popular. In 2009, Great Basin convened 15 astronomers with 22 telescopic instruments and attracted more than 350 participants to a one-night stargazing event. In August 2010, the park hosted a three-day astronomy festival which attracted more than two dozen astronomers who set up more than 40 telescopes for the viewing public.	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
27	31	VR	36	9	Potential resource impacts from night lighting did not go far enough in protecting the area from sky glow.	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA. "Because of the small amount of artificial lighting being introduced at the wind facility, sky glow resulting from the Proposed Action would not result in a change to the Bortle Dark-Sky rating of Class 3."
18	31	VR	36	9	In 2004 and 2005, the Night Sky Team recognized Great Basin as one of the darkest places in the country. The significance of preserving this "last chance" resource is relevant to the fact that two-thirds of Americans cannot see the Milky Way from their backyards and nearly all Americans live in places with measurable light pollution.	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA.
17	31	VR	36	9	NPCA notes that the Preliminary EA mentions that area's dark skies and applauds this addition in the evaluation of the Spring Valley Wind Project. We also applaud acknowledgement of National Park Service mandates to protect "natural lights capes" including dark night skies "unperturbed by artificial lights".	A model of the effects of the proposed Wind Energy Facility has been completed by Dark Sky Partners to confirm the conclusions described in Section 4.8.2.3 of the Preliminary EA.
16	31	VR	60	6	NPCA notes the Visual Contrast Rating Worksheet from Wheeler Parks identifies excavation for the turbines and facility foundation, vegetation removal, and turbines painted flat matte gray as visual impacts from Wheeler Peak. The KOP and other BLM analysis on potential adverse viewshed impacts related to the proposal does not appear to take into account the significance of preserving "scenic views" as mandated by the national park's statute. NPCA further notes that the project has not adequately addressed how these visual considerations might be mitigated.	The BLM is not mandated to preserve "scenic views." However, BLM manual 8400 Visual Resource Management .06 (A) states "The Bureau has the basic stewardship responsibility to identify and protect visual values on public lands." Project-specific mitigations have been identified in Section 6.4 of the Preliminary EA: "Following construction activities, as described in the Restoration and Weed Management Plan…use soil and rock stain on restored areas to reduce the visible color contrast between bare soil and vegetation."
25	31	VR	60	6	Mitigation efforts regarding the views from Wheeler Peak were not outlined.	The BLM is not mandated to preserve "scenic views." However, BLM manual 8400 Visual Resource Management .06 (A) states "The Bureau has the basic stewardship responsibility to identify and protect visual values on public lands." Project-specific mitigations have been identified in Section 6.4 of the EA: "Following construction activities, as described in the Restoration and Weed Management Plan…use soil and rock stain on restored areas to reduce the visible color contrast between bare soil and vegetation."
8	31	VR	60	6	In April 2008, the Bureau of Land Management's Ely District Office recognized during a pre-project meeting the visual resources related to the Spring Valley Wind proposal as one of several "issues of concern." NPCA applauds the BLM's insistence that a Visual Resource Inventory (VRI) be conducted regarding this project but also notes that, despite comments in January, the VRI study prepared by SWCA Environmental Consultants has not been re-examined or updated from September 2009.	The BLM conducts inventories and makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III/IV through the BLM RMP/ROD in 2008. The Visual Resource Assessment is an evaluation of the impacts to visual resources and the consistency with Visual Resource Management Class. The Visual Resource Assessment reflects the proposed action as described in the Preliminary EA and no changes were determined necessary.
23	31	VR	60	6	Only one location from within the park was evaluated, with no consideration for other viewpoints within the park or from travel routes approaching the park.	The Wheeler Peak KOP is representative of views from within the park. Additionally, the views of people traveling to the Park are captured by the KOPs along U.S. Route 6/50.
13	31	VR	60	6	Furthermore, per the Springs Valley Wind Visual Resource Assessment, only one single ranking was completed from a vantage point within the park, Wheel Peak. This location was evaluated from a position representing "the views of people looking directly at the project area from the summit." NPCA believes that there are other overlooking vantage points within the park, as well as travel points approaching the park, that require assessment by the BLM, which is currently lacking in the VRA.	The Wheeler Peak KOP is representative of views from within the park. Additionally, the views of people traveling to the Park are captured by the KOPs along U.S. Route 6/50. Though there are many other view points that the SVWEF can be observed from, the KOPs selected represent the major points that the casual observer would see the project.
14	31	VR	60	6	NPCA also questions the critical viewpoint analysis (KOP) from Wheeler Peak. While the Visual Resource Assessment acknowledges that Spring Valley Wind turbines would be visible from Wheeler Peak, 11 miles away, this analysis attempts to subjectively discount the wind generating facility's impact on the landscape by postulating that park visitors are uninterested in views of the basin floor or views to the west, where the project would be located. (See Page 13. "Additionally, the valley floor is not the dominate view. Views to the south, east and north of the rugged Snake Range are more scenic to visitors at the summit.")	Section 4.8.2.2 of the Preliminary EA states "The scenic panoramic views of the surrounding rugged mountain ranges would dominate the view of visitors at the summit." This conclusion has not changed.
24	31	VR	60	7	Evaluation of a viewpoint from Wheeler Peak did not address the sweeping vistas from the peak and, in fact, arbitrarily and subjectively attempted to diminish this perspective.	The BLM does not try to diminish the view from Wheeler Peak. Section 3.8.1 of the Preliminary EA states : "This KOP represents the views of visitors to the park, primarily those visitors climbing Wheeler Peak. The viewshed of GBNP is a vast area of largely undeveloped lands, almost 200,000 square miles of the Great Basin. Lands surrounding the GBNP are valleys and mountain ranges, including the Mount Moriah Wilderness to the north and the High Schells Wilderness to the west. The rugged horizon lines of those surrounding mountain ranges extend for miles to the north and south. The expansive valley floors are covered in tan, green, and gray grass and shrub lands, interspersed with darker green juniper trees. They are also crisscrossed with lighter toned dirt and paved roads and transmission lines. Visitors to the summit have clear panoramic views of the entire area."

Table H.4. Comment Response Table

Comment ID	Commenter ID	Comment Resource Category	Comment Resource Code	Comment Disposition	Comment	Comment Response
10	31	VR	60	8	BLM's inventory process of identifying the visual resources of an area and assigning them inventory classes (as outlined in BLM Handbook H-8410-1, Visual Resource Inventory), requires that the BLM evaluate potential surface-disturbing activities and assign appropriate management objectives. In reviewing the Spring Valley Wind Visual Resource Assessment document, it must be noted that "national park" was mentioned only twice in the document and only addressed as a locator of Wheeler Peak, on of five sites that were evaluated as KOPs or "critical viewpoints".	The BLM conducts inventories and makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III/IV through the BLM RMP/ROD in 2008. The Visual Resource Assessment is an evaluation of the impacts to visual resources and the consistency with Visual Resource Management Class. Great Basin National Park is discussed in detail throughout the EA in sections such as visual, noise, and land use; including a visual simulation from Wheeler Peak as a representative view from one of the few readily accessible locations in the Park that has a direct view of the project area.
12	31	VR	60	8	The Environmental Assessment's Class III classification of the Spring Valley Wind project could potentially lead to the development of a project that is not consistent with the park's mandate to preserve its "scenic values". Because Class I/Class II objectives were not established in the document, it can be assumed that the Visual Resource Assessment is incomplete and flawed.	The VRM Class was not assigned as part of this project or the Visual Resource Assessment. The BLM makes Visual Resource Management Class designations through the land use planning process. This area of Spring Valley was designated as VRM Class III through the BLM RMP/ROD in 2008.
4	34	VR	16	6	Visual impacts made the wind energy should be considered, especially when the Indian tribes come in to the area to hunt and gather plants or hold ceremonies.	The impacts to visual resources are described in Sections 4.8.2, 4.8.3, and 4.8.4 of the Preliminary EA.
9	14	WR	17	6	The EA states that up to 30.7 acre feet of water would be used in total for the entire project. Because the basin in question is over-appropriated for water use, we would like to see a final EIS break down the water use in a table. The water use should be broken down into categories of dust control, long term maintenance, concrete mixing and personal use of construction workers. The EA fails on all accounts to adequately describe what is proposed.	Section 2.1.1.2.12 of the Preliminary EA provides the requested breakdown in the text: "In normal conditions, a total of about 20,000 gallons of water per turbine would be needed for batching concrete; however, Pattern Energy may need to increase the moisture content by as much as 10%. Based on the maximum of 75 turbines, a total of 1,650,000 gallons of water would be needed for turbines. Of the remaining 8,350,000 gallons, 60%–70% would be used for dust suppression, and the balance (~5,280 gallons a week) would be necessary for potable uses throughout both the construction period and during operations."
3	26	WR	53	6	Turbines will be placed in soils that are very likely to be subject to subsidence. This raises serious unanswered questions about the stability of turbines. Plus excavation for turbines, hydrological disruption from the 28 miles of roads and other construction activity is likely to alter underground features and potentially ground water.	As stated in Section 2.1.1.2.1 of the Preliminary EA: "Prior to construction, additional geotechnical investigations would be completed at each turbine location, and throughout the project area as needed, to identify any site specific construction issues and prepare final foundation design and necessary BMPs." These final foundation designs would account for differential settlement of the soils.
4	26	WR	56	6	Irrigation in the valley is already leading to aquifer declines. There is no analysis provided for the current rate of decline, subsidence, or other instability or uncertainty related to water. As aquifers decline, their ability to support stabilizing native vegetation on the soil surface is also reduced. In greed for water, SNWA has even revealed there are foreseeable plans to purposefully kill vegetation in the valley areas so that the plants are not transpiring water. Plus in the context of the insect food critical for native bats, as water resources decline so too may essential insect prey of rare bats - inflicting even more stress on the rare and declining bat populations.	The greatest amount of water use associated with the proposed Spring Valley Wind Facility would be through a temporary lease with existing water rights holder, would occur during the construction phase, and would total 0.44% of the total annual groundwater discharge in Spring Valley. There would be no long-term change to groundwater resources in Spring Valley from the proposed action or alternative action.
8	26	WR	56	7	Plus, it is highly foreseeable that as part of the foreseeable wind developments that ground water may be withdrawn not only for ground water mining for the Southern Nevada Water Authority, but also for water storage devices for the days when wind may not be sufficient to produce power. We understand there is at least one of these wind hydro lift projects proposed for the Ely area. Where is that? How foreseeable are such projects here? What will be the cumulative effects, along with the SNWA aquifer de-watering, on the underground aquifer? And how will subsidence and sinking affect the long-term stability of any turbines put in place here?	The proposed Spring Valley Wind Facility does not include a "hydro lift" component and there are not any current applications for that type of project in Spring Valley. Additionally, as stated in Section 2.1.1.2.1 of the Preliminary EA: "Prior to construction, additional geotechnical investigations would be completed at each turbine location, and throughout the project area as needed, to identify any site specific construction issues and prepare final foundation design and necessary BMPs."
8	27	WR	53	9	The Draft EA states that changes to surface water quality would result from increased erosion associated with ground-disturbing activities, increased traffic from construction activities, and operation of heavy machinery. These changes in water quality will adversely affect areas of cultural and spiritual significance of water resources to our people, it must be stated in the EA that those water quality changes will adversely impact the integrity of the multitude of sites, including Swamp Cedars, that are both eligible under NRHP and important for the CTGR and other tribes.	Sections 4.6 and 4.7 of the Final EA have been revised to include more detailed information specific to the project location and the site-specific consultation, studies, and inventories completed regarding cultural resources and Native American religious concerns.
19	28	WR	17	9	Table 5.0-1, Draft EA at 135, identifies SNWA's water rights in Spring Valley. This discussion should be updated pertinent to June 17, 2010 Nevada Supreme Court opinion. SNWA holds groundwater applications for 91,224 any in Spring Valley. SNWA also holds existing surface and groundwater agricultural rights in Spring Valley. The entirety of SNWA's GWD Project is also not represented. Only the Spring Valley Lateral pipeline is described; other components of the GWD Project within Spring Valley and future groundwater production facilities are not described and quantified.	Table 5.0-1 and the information presented in the cumulative impacts analysis has been revised to reflect the GWD project in Spring Valley and the most current information.

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9	29	WR	17	6	The EA states that up to 30.7 acre feet of water would be used in total for the entire project. Because the basin in question is over-appropriated for water use, we would like to see a final EIS break down the water use in a table. The water use should be broken down into categories of dust control, long term maintenance, concrete mixing and personal use of construction workers. The EA fails on all accounts to adequately describe what is proposed.	Section 2.1.1.2.12 of the Preliminary EA provides the requested breakdown in the text: "In normal conditions, a total of about 20,000 gallons of water per turbine would be needed for batching concrete; however, Pattern Energy may need to increase the moisture content by as much as 10%. Based on the maximum of 75 turbines, a total of 1,650,000 gallons of water would be needed for turbines. Of the remaining 8,350,000 gallons, 60%–70% would be used for dust suppression, and the balance (~5,280 gallons a week) would be necessary for potable uses throughout both the construction period and during operations."

dispositionid	dispositiondescription
6	AA (Already Addressed)
7	NS (non substantive)
8	OOS (out of scope)
9	S-C (change in FEIS required)
10	S-NC (no change required)