

United States
Department of
the Interior



Bureau of Land
Management

**Eagle Lake
Field Office**

**Susanville,
CA 96130**

December 1, 2007

Environmental Assessment

CA-350-2007-21

Invenergy Wind - North America

Meteorological Towers

Responsible Official:
Dayne Barron
Field Manager
Eagle Lake Field Office
2950 Riverside Drive
Susanville, CA 96130
(530) 257-0456

For Information Contact:
Duane Jackson
Eagle Lake Field Office
2950 Riverside Drive
Susanville, CA 96130
(530) 252-5312
dajackso@ca.blm.gov

Table of Contents

Table of Contents.....	2
1.0 PURPOSE AND NEED FOR THE ACTION	3
1.1 Introduction/Background.....	3
1.2 Proposed Action Summary	3
1.3 Need for the Action	3
1.4 Objectives of the Action (Purpose).....	3
1.5 Land Use Plan Conformance	4
1.5.1 Land Use Plan.....	4
1.6 Relevant Laws, Regulations, EISs, and Other Documents	4
1.6.1 Executive Order 13212, “Actions to Expedite Energy-Related Projects”	4
1.6.1 National Energy Policy of 2001.....	4
1.6.2 Energy Policy Act of 2005 (P.L. 109-58).....	4
1.6.3 Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-administered Lands in the Western United States (December 2005).....	4
1.7 Scope of This Environmental Analysis / Identification of issues:	5
1.7.1 History of the Planning and Scoping Process	5
1.7.2 Critical Elements of the Human Environment	6
1.7.3 Identified Issues Studied in Further Detail.	8
1.7.4 Resource(s)/Concerns discussed but eliminated as an Issue.....	10
2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION	11
2.1 Description of Alternatives.....	11
2.1.1 Alternative A: BLM does not authorize met towers (No Action).....	11
2.1.1.2 Mitigation and Monitoring.....	11
2.1.2 Alternative B: BLM would authorize met towers (Proposed Action).....	11
2.1.2.1 Principal Actions of Proposed Action.....	11
2.1.2.2 Mitigation and Monitoring.....	13
3.0 AFFECTED ENVIRONMENT	13
3.1 Introduction	13
3.2 General Setting:	13
3.3 Description of Relevant Potentially Affected Resources (Identified Issues)	14
3.3.1 Grazing within the Cottonwood and South Horse Lake Grazing Allotments.....	14
3.3.2 Visual Resources	15
3.3.3 BLM Sensitive and other wildlife species.	16
4.0 ENVIRONMENTAL CONCEQUENCES	17
4.1 Introduction	17
4.2 Predicted Effects on Relevant Affected Resources (Issues) of All Alternatives.....	17
4.2.1 Predicted Effects on Grazing within the Cottonwood and South Horse Lake grazing allotments.....	17
4.2.1.1 Effects of No Action Alternative (BLM would not authorize met towers).....	17
4.2.1.2 Effects of Proposed Action Alternative (BLM would authorize met towers).....	18
4.2.2 Predicted Effects on Visual Resources	21
4.2.2.1 Effects of No Action Alternative (BLM would not authorize met towers).....	21
4.2.2.2 Effects of Proposed Action Alternative (BLM would authorize met towers).....	21
4.2.3 Predicted Effects on BLM Sensitive Species and other wildlife species.....	24
4.2.3.1 Effects of No Action Alternative (BLM would not authorize met towers).....	24
4.2.3.2 Effects of Proposed Action Alternative (BLM would authorize met towers).....	25
5.0 CONSULTATION & CORDINATION.....	27
5.1 Persons, Groups and Agencies Consulted	27
5.2 List of Preparers.....	28
Appendix 1 - Met Tower Schematic.....	29
Appendix 2 - Wildlife Tables	30
Attachment 1 - Map of proposed tower locations and staging area	34
Attachment 2 - Map of Grazing Allotments	35
Attachment 3 - VRM Photos	36

1.0 PURPOSE AND NEED FOR THE ACTION

1.1 Introduction/Background

The BLM Eagle Lake Field Office issued Invenergy Wind - North America (Invenergy) a right-of-way to conduct wind energy testing and monitoring in the Horse Lake area in April of 2007. No specific meteorological (met) tower locations were authorized in the right-of-way because company personnel could not access the proposed locations to verify their suitability. Company personnel have now verified the proposed locations and have applied for authorization to install the met towers. The met towers would be authorized by amendment to the existing right-of-way grant or through a separate right-of-way grant.

This National Environmental Policy Act (NEPA) analysis will help the BLM determine if it is appropriate to issue a right-of-way to Invenergy to conduct the activities requested.

The right-of-way grant for met tower installation and wind testing would be issued for a period of 3 years terminating on December 31st of the third year. At that time the holder must apply for another right-of-way to continue testing and monitoring.

1.2 Proposed Action Summary

In response to an application from Invenergy, the BLM Eagle Lake Field Office proposes to authorize through right-of-way grant the installation, operation, maintenance, and removal of four 191 foot met towers in the Horse Lake area, Lassen County, California. The amendment would also authorize the holder to utilize one staging area in preparation for the installation of the towers and use motorized vehicles off of existing roads to access one tower location.

See Attachment 1: Map of proposed tower locations and staging area.

1.3 Need for the Action

Invenergy submitted an application in accordance with 43 CFR 2800 for the installation, operation, maintenance and removal of four met towers for the purpose of wind energy testing and monitoring. The BLM, consistent with regulation and policy, must respond to and if appropriate, process any application received based on the same regulations.

1.4 Objectives of the Action (Purpose)

1.4.1 Objective #1

Process the application in compliance with applicable laws, regulations and policy.

1.5 Land Use Plan Conformance

1.5.1 Land Use Plan

The Willow Creek Management Framework Plan (6/83) does not specifically address the proposed activities, however the proposal is clearly consistent with the following terms, conditions, and/or decisions of the plan:

L 2.1 states “Grant rights-of-way for powerlines, pipelines, telephone lines, and other utilities as needed by the public.”

1.6 Relevant Laws, Regulations, EISs, and Other Documents

1.6.1 Executive Order 13212, “Actions to Expedite Energy-Related Projects”

This order established the policy that federal agencies should take appropriate actions, to the extent consistent with applicable law, to expedite projects to increase the production, transmission, or conservation of energy.

1.6.2 National Energy Policy of 2001

The policy is that the Departments of the Interior, Energy, Agriculture, and Defense will work together to increase renewable energy production.

1.6.3 Energy Policy Act of 2005 (P.L. 109-58)

Section 211 of the Act states “It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydropower renewable energy projects located on the public lands with a generation capacity of at least 10,000 megawatts of electricity.”

1.6.4 Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-administered Lands in the Western United States (December 2005).

Establishes the BLM Wind Energy Development Program and analyzes the affects of wind energy testing, monitoring and development on a programmatic level.

1.7 Decision That Must Be Made / Or Decision Needing To Be Made

The Bureau of Land Management Eagle Lake Field Manager will select one of the alternatives described in this EA and determine whether or not the alternative will have or cause a significant impact on the human environment. If it is determined that there would not be a significant impact, then a Finding of No Significant Impact (FONSI) would be written. If it is determined that there will be a significant impact, an Environmental Impact Statement would need to be

prepared. The decision needing to be made is limited to the proposed action of authorizing the installation of four met towers and the no action alternative (not authorizing the installation).

1.8 Scope of This Environmental Analysis / Identification of Issues

1.8.1 History of the Planning and Scoping Process

On May 1, 2007, Invenergy requested authorization to install 11 meteorological towers within their existing right-of-way area.

Invenergy's internal meteorological tower siting analysis, as well as botanical issues, resulted in a modification of their request from 11 towers to only 4 towers proposed on public lands.

On August 9, 2007, the project was submitted to BLM resource specialists for their comments.

On August 23, 2007, a scoping letter and map was mailed to 38 individuals, organizations and agencies who previously expressed interest in the wind energy projects.

On August 23, 2007, a tribal consultation letter was mailed to the tribal leaders of each of the six recognized tribal governments who represent four tribes with ancestral lands that fall within the administrative boundary of the BLM Eagle Lake Field Office.

On September 4, 2007, the Eagle Lake Regional Preservation Coalition provided written comments.

On September 6, 2007, Daren and Patricia Hagata provided written comments.

On September 7, 2007, Tim Swickard, on behalf of Todd Swickard and Five Dot Land and Cattle Co., provided written comments.

On September 10, 2007, David and Denise Lee provided written comments.

On September 19, 2007, Invenergy provided written comments.

On October 4, 2007, the California Department of Fish and Game provided written comments.

On October 5, 2007, the Pit River Tribe provided written comments.

On October 15, 2007, BLM mailed copies of the draft EA to the individuals, groups and organizations detailed above who provided written comments.

On October 29, 2007, the Eagle Lake Regional Preservation Coalition provided written comments.

On October 29, 2007, Tim Swickard, on behalf of Todd Swickard and Five Dot Land and Cattle Co., provided written comments.

On October 31, 2007, Invenergy provided written comments.

On October 31, 2007, the following individuals provided written comments transmitted via a letter from Richard E. Parker:

Curt Moran	Frances Parker
David Monath	Mary E Helt
Donna Smith	Sarah Callahan
Tim Holabird	Harmen Lyzenga
Kristen Webster	Larry Smith
Julia Gussett	Stephen Pezzullo
Marvin and Carol Clark	Michael J. Vivilacqua
Gino Surian	Mike Moser
Justin Raymond	Walt Reynolds
Tony Ardito	Jill Neuenschwander
James C. Miller	Marielana Q. Kruegel
Joseph McDonald	Douglas W. Hall
Dorothy Hall	Warren L. Parker
Robert Berg	Tim Ochotorena
Jim Young	Ronald Garrelts
Kimberly Neill	Tiffany Berg
Bob Smith	Richard E. Parker
Jim Deering	Morgan Mesloh
Sheila Holt	Corey Holt
Diana Borchert	Randy Givens
John Wade Workman	Lance Monath
Jill Joy	

On November 2, 2007, Joe Ochotorena provided written comments.

On November 2, 2007, Martin Ochotorena provided written comments.

On November 2, 2007, Lola Mendiolea provided written comments.

On November 2, 2007, Jim E. Bronson Jr. provided written comments.

On November 2, 2007, Steve Phillips provided written comments.

On November 2, 2007, Yvette M. Neely provided written comments.

On November 5, 2007, Daren and Patricia Hagata provided written comments.

All comment letters were reviewed by BLM interdisciplinary team specialists to determine if the comments represented issues or concerns related to resources and if they were within the

scope of this environmental analysis. Any identified issues related to resources that are within the scope of this analysis are identified in Section 1.7.3 or 1.7.4. Other concerns or comments expressed which were determined to be outside the scope of this analysis are not covered in this analysis and are addressed in the administrative record.

1.8.2 Critical Elements of the Human Environment

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order and must be considered in this EA.

Table 1. Critical Elements of the Human Environment that have been considered for this environmental assessment (EA) are listed below. Elements that may be affected are further described in this EA. Rationale for those elements that will not be affected are listed in the table.				
Critical Element	No Impact	May Impact	Not Present	Rationale
Air Quality	X			The effects to this element would be limited to the exhaust fumes from 12 vehicle trips into the area for installation and removal and two vehicle trips per month for operation and maintenance.
Areas of Critical Environmental Concern			X	The met towers would not be installed in any existing Area of Environmental Concern (ACEC). However, Met Tower 4 would be located within the proposed Eagle Lake Basin ACEC, in accordance with the Eagle Lake Proposed Resource Management Plan, 2007.
Cultural Resources			X	Cultural resource surveys were conducted within the areas potentially affected by the proposed activities. No cultural resources were identified. Tribal consultation was conducted and there were no cultural resources identified that would be effected by the proposed action.
Environmental Justice	X			There are no minorities or low income groups within the area potentially affected by the proposed action and it has been determined that the action will not affect such groups.
Farmlands, Prime or Unique			X	There are no farmlands within the area potentially affected by the proposed action.
Floodplains			X	There are no floodplains within the area potentially affected by the proposed action.
Invasive, Non-native Weed Species			X	There are no invasive, non-native weed species within the area potentially affected by the proposed action.
Native American Religious Concerns	X			The BLM Eagle Lake Field Office consulted with the six federally recognized tribes to determine if there are any traditional cultural properties within the areas potentially affected by the proposed action. The consultation did not result in specific objections to the meteorological tower locations, however the Pit River Tribe is opposed to the concept of wind energy development in their ancestral lands. Because no specific concerns or issues have been presented there is nothing to be analyzed.

Table 1. Critical Elements of the Human Environment that have been considered for this environmental assessment (EA) are listed below. Elements that may be affected are further described in this EA. Rationale for those elements that will not be affected are listed in the table.				
Critical Element	No Impact	May Impact	Not Present	Rationale
				However, the BLM notes the general opposition to wind energy development by the Pit River Tribe.
T&E Fauna/Flora			X	Botanical surveys were conducted within the area potentially affected by the proposed action. No threatened or endangered flora was identified. The Carson wandering skipper is the only federally listed wildlife species that potentially occurs within the BLM Eagle Lake Field Office boundary. This species would not be affected by the proposed action. No threatened or endangered fauna species are known to occur within the proposed action area.
Waste-Hazardous/Solid	X			No hazardous or solid waste will be generated as a result of the proposed action. The only hazardous wastes that will be present will be the incidental amounts contained in the equipment associated with the installation, operation, maintenance, and removal of the towers.
Water Quality-Surface/Ground			X	There is no surface water within the area potentially affected by the proposed action. There are no activities proposed that could potentially affect the ground water.
Wetlands/Riparian			X	There are no wetlands or riparian areas within the areas potentially affected by the proposed action.
Wild & Scenic Rivers			X	There are no wild and scenic rivers within the areas potentially affected by the proposed action.
Wilderness/Wilderness Study Areas			X	There are no wilderness study areas or wilderness within the areas potentially affected by the proposed action.

1.8.3 Identified Issues Studied in Further Detail

The following, in addition to any critical elements above which have a “may impact” rating, have been determined to be issues and will be analyzed further in this EA.

Table 2. Identified Issues Studied in Further Detail	
Other Issues/Resources	Rationale
Impacts to natural livestock grazing patterns on the Cottonwood and South Horse Lake grazing allotments resulting from activities associated with the installation, operation, maintenance and removal of met towers. (Issue derived from Hagata letter dated 9/6/07)	A grazing permittee on the Cottonwood and South Horse Lake allotments experienced impacts to cattle distribution and thus allotment utilization during the 2007 grazing period due to increased vehicle traffic on the roads within these allotments. These activities were associated with the preliminary site studies for the Invenergy Wind - North America proposed wind energy development project. The potential effects of activities associated with this project, along with the existing activities, would be an issue and are addressed in Section 4.2.1.

Other Issues/Resources	Rationale
Visual impacts to scenic quality; Visual Resources Management.	The visual impact of the proposed met towers is of concern to some of those who commented on the proposed action in response to the scoping letter issued by BLM for this proposed action. BLM is required to analyze visual impacts to the scenic quality if a proposal has potential for significant impacts to scenic resources or if there is concern for a projects impact to visual resources. Therefore, visual resource impacts are analyzed in Section 4.2.2.
There are several sensitive, threatened and endangered species within the prescribed industrial project's first segment (the four met towers noted above).	There are no federally listed species within the area; however there are special status wildlife present, as listed in Appendix 2. The presence or absence of special status species does not automatically trigger analysis of effects to the species in an environmental assessment. The effects to BLM sensitive species, and other wildlife, are analyzed in further detail in Section 4.2.3.

1.8.4 Resource(s)/Concerns Discussed but Eliminated as an Issue

Table 3. Resource(s)/ Concerns Discussed but Eliminated as an Issue	
Other Issues/Resources	Rationale for Elimination
Met Towers 3, 4, and 5 are located on existing cattle trails between water sources. Disturbs natural livestock grazing patterns.	An analysis of the effects of activities associated with the met towers on natural livestock grazing patterns is addressed in further detail in this analysis. See Table 2. Identified Issues Studied in Further Detail.
Met Tower 5 is placed on an existing salting area. Disturbs natural grazing patterns.	An analysis of the effects of activities associated with the met towers on natural grazing patterns is addressed in further detail in this analysis. See Table 2. Identified Issues Studied in Further Detail.
Access to Met Tower 1 location from the north is across private land that prohibits trespass for this purpose.	The proposed action does not authorize activities on private land. The right-of-way grant would require the holder to obtain authorizations on private lands.
The location is significant as a spiritual and highly concentrated area of cultural properties and archaeology areas that could be damaged by the project.	The comment was not specific regarding location. Areas that may be potentially disturbed by the project were surveyed for cultural resources. No cultural resources were identified within the Area of Potential Effect.
Recommend that the tower guy wires be fitted with either bird flight diverters or staggered dampers as described in the literature provided by Invenergy.	The proposed action includes the installation of bird diverters on the guy wires.
Impacts to vegetation and soil resources.	Based on similar met tower installations, soil and vegetation disturbance occurs only within a 15 foot by 15 foot area surrounding five anchor locations and the tower base plate. This equates to approximately .03 acres of soil disturbance per tower. Vehicle access to anchor and base locations disturbs approximately .14 acres of vegetation but no soil disturbance occurs. In summary, within the 2.65 acre footprint of each tower, approximately .17 acres of vegetation would be disturbed. Considering all four met towers, approximately .68 acres of vegetation, and thus soil, would be affected. Vehicle access to Met Tower 1 would disturb an additional .10 acre of vegetation. The staging area is currently void of vegetation. Due to the limited scale of disturbance to soil and vegetation, and the rehabilitation component of the proposed action, this issue was not analyzed further.
Impacts to cultural, visual, and wildlife resources within the proposed Eagle Lake Basin Area of Critical Environmental Concern (ACEC).	Currently no met towers are located within an ACEC. However, once the Eagle Lake Proposed Resource Management Plan is approved, Met Tower 4 would be located just inside the Eagle Lake Basin ACEC boundary (approx. 50 feet). The BLM has determined that no cultural resources are located within the project area. The effects to visual resources and wildlife for the entire project area are addressed in further detail, as described in Table 2. Hence, no separate analysis of the ACEC area is warranted.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Description of Alternatives

2.1.1 Alternative A: BLM does not authorize met towers (No Action)

2.1.1.1 Principal Actions of No Action Alternative

BLM would not authorize Invenergy to install, operate, maintain and remove four met towers.

2.1.1.2 Mitigation and Monitoring

Not applicable.

2.1.2 Alternative B: BLM would authorize met towers (Proposed Action)

2.1.2.1 Principal Actions of Proposed Action

BLM would issue a right-of-way amendment or grant to:

Install, operate, maintain, and remove four 191 foot meteorological towers (See Appendix 1).

Utilize one staging area in preparation for the installation of the towers (existing disturbed area, approximately 1/8 acre, adjacent to road).

The right-of-way would:

Require that the towers be painted orange and white for identification by aircraft.

Require the installation of bird diverters on the guy wires.

If necessary, require fence panels or other fencing to be placed around the guy wires at the anchor points to protect them from cattle.

Authorize vehicular access to the sites on existing roads on BLM administered lands and within the installation area. Off-road vehicle travel (approx. 420 feet) would be authorized to access Met Tower 1. The other proposed locations are adjacent to existing roads.

Authorize the following activities at the site: The tower would be pieced together, laid out on the ground, guy wires attached and then the tower is pulled up with a winch. The tower base is a 6.5 foot square plate that sits on top of the ground. The guy wires are attached to screw-in anchors or other device to hold the anchor. The disturbance around the anchors is approximately 15 feet square. There are approximately 5 anchor points. Depending on the site some taller vegetation and trees may need to be cut to allow the

tower to be erected without catching the guy wires. The use of portable generators, compressors, and a backhoe may be necessary. The overall footprint of the towers and cables is approximately 328 feet by 328 feet.

Authorize access to the site on an occasional basis for operation, maintenance, monitoring, and inspection. If there is cellular service at the location, site visits are few because the information is downloaded over the cellular communication system. Access would be coordinated with the BLM to limit conflicts with other uses of public land.

Authorize access to remove the towers. These activities would be conducted in the same manner as installation.

Require the use of hand tools to rehabilitate the anchor point locations by filling in any holes and returning the soil to the original grade. Hand tools would be used to obliterate any significant soil disturbance caused by any vehicles used to access the site.

Require that the holder and/or their representatives travel at less than 20 mph on the main Fredonyer Peak road and less than 5 mph on the two track roads within the grazing allotments to reduce disturbance to wildlife and livestock.

Require, weather and soil conditions permitting, installation of the met towers during the fall of 2007. A written "Notice to Proceed" would be required prior to installation in 2008.

Estimate of Vehicle Trips Associated with the Proposed Action

Installation: The shipped met towers would be dropped off a transport vehicle at the staging area located near Hwy 139. Two four-wheel drive vehicles would be utilized to transport the disassembled towers and installation crew to each of the tower locations. The installation crew would be at each tower location for three days while preparing the site and assembling and raising the towers. A small excavator or backhoe may be driven or transported to each tower location for any necessary excavation work for the anchors. 1 tower location x 2 vehicles x 3 days = 6 vehicle trips. (Vehicle trip = ingress and egress combined. Includes any amount of vehicle use on the main Fredonyer Peak road or two-track roads to the tower locations)

In addition, one biologist vehicle would be required for installation of mounting hardware for two acoustic monitoring devices per tower (as required by BLM).

7 vehicle trips per tower location x 4 tower locations = 28 vehicle trips associated with tower installation over 12 days averaging 2.3 trips a day.

Operation: Each tower location may need to be visited once each month for downloading data. Due to the close proximity of Met Towers 3, 4, and 5, all of these towers could be visited on the same trip. Met Tower 1 would be visited on a different day. An additional biologist vehicle would visit the four tower locations twice per month.

6 vehicle trips per month for operation activities.

Maintenance: Although met towers typically need very little maintenance, it may be necessary to access the towers to tighten cables, replace instruments, etc. This maintenance would often be done in conjunction with normal operation visits but one extra visit per month may be necessary to maintain the four towers.

1 vehicle trip per month for maintenance activities.

Removal: The same activities would be associated with removal of the towers.

28 vehicle trips associated with tower removal.

Restoration: An additional day at each tower location may be necessary for a two person (one pickup) crew to conduct site restoration.

4 vehicle trips associated with site restoration.

2.1.2.2 Mitigation and Monitoring

Project design features have been incorporated into the proposed action to eliminate any potential effects to resources and public safety.

The project will be monitored to ensure that the design features are implemented as per plan design.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

The Affected Environment describes the environmental components (resources) of the area that would be affected by the alternatives and that would affect the alternatives if they were implemented.

3.2 General Setting

The project area is located within a transition zone between the wooded eastern slopes of the Cascades and the arid western boarder of the Great Basin, at an elevation of between approximately 5500 and 8000 feet, on ridgelines radiating out from Fredonyer Peak. The ridges radiating from Fredonyer Peak touch Horse Lake on the east, Willow Creek Valley to the south, and Eagle Lake to the West. The predominant vegetation on Fredonyer Peak is shrubs (predominantly sagebrush), grasses and juniper.

3.3 Description of Relevant Potentially Affected Resources (Identified Issues)

3.3.1 Grazing within the Cottonwood and South Horse Lake Grazing Allotments

The proposed Met Towers (1, 3, 4, and 5) are within four different grazing allotments (Cottonwood, South Horse Lake, Wood, and North Horse Lake Allotments).

This discussion of effects will be focused on Cottonwood and the Northwest Area of South Horse Lake Allotments which appear to have more activities or interest in activities related to wind energy development (See Figure 2 - Map of Grazing Allotments).

The grazing period for the Cottonwood and South Horse Lake Allotments (hereafter referred to as “allotments”) usually begins in late April or early May and continues through the grazing season until the end of August. The grazing use is identified in the table below:

ALLOTMENT	LIVESTOCK NUMBER AND KIND	SEASON OF USE	TOTAL AUMs*
Cottonwood (One Permittee)	40 (Cattle)	05/10 to 08/31	150
South Horse Lake (Five Permittees)	603 (Cattle)	04/01 to 08/31	3,015

* Annual adjustments to livestock numbers and season of use may occur but within the total AUMs shown in the table.

The permittee within the Cottonwood Allotment also holds a permit in the South Horse Lake Allotment. These allotments are fenced separately, however his cattle may be rotated or moved between the two areas or use may occur in both concurrently. Typically, water for livestock and wildlife is limited to natural springs and reservoirs that may or may not fill due to annual snow pack and rainfall. The same cattle use these allotments each year and have developed specific grazing trails and use areas. The permittee does some herding but most of the cattle distribution is based on behavior of the cows and placement of salt, time of grazing, and water locations.

Cattle are familiar with, and use traditional salt locations, which tends to influence their distribution and use of specific areas. The BLM requires all salt stations be a minimum of ¼ mile from live water to reduce concentration around water areas. Terrain in the smaller allotment (Cottonwood) is steep to very steep and the permittee uses salt placement to move cattle from one water source to another and to encourage use in higher elevations. There is only one primary road that traverses north to south in the area.

Normally, there is very little disturbance related to vehicle traffic in both allotments. After the cattle are moved into the area in the spring there may be one to two vehicles a week that pass through this area. Throughout the grazing season, cattle utilize roads, which are easy to walk on, rather than travel through the brush as they move throughout the allotments. During hunting season (August through October) more vehicle traffic may occur, but is still

considered low or limited because there are very few hunting tags issued for this area, and due to the remote location and limited road network. No specific information is available to quantify how vehicle activity affects cattle distribution, however, permittee and BLM range management personnel experience suggests that vehicle speed would likely have a greater effect than vehicle numbers. In most cases, the cattle move off of the road while the vehicle passes and then wander back on. Higher speeds cause a greater flight response from the cattle and thus cause a greater disturbance. Although, it is not known how many vehicles can travel through an allotment before the cattle avoid the roads, it is clear that it does have some level of effect.

BLM administrative use, general recreation activity (not hunting) and permittee activities also require use of the roads, but this use is limited to probably no more than 4 vehicle trips per month.

3.3.2 Visual Resources

The Fredonyer Peak ridge, from south of the peak to north of the peak, forms the dominant visual landscape for the north end of the Eagle Lake Basin. The south side of Fredonyer Peak forms the dominant landscape for the north side of Willow Creek Valley. This area is generally undeveloped, except for small dirt roads, a fire lookout, and several communication facilities on the summit of Fredonyer Peak.

The area where the proposed met towers would be located is viewed year round by travelers on Highway 139, Horse Lake Road and from residences and seasonal activity areas at Eagle Lake. The area is also viewed from boaters on Eagle Lake and from ranches and homes in the Willow Creek Valley.

Fredonyer Peak is identified in the Eagle Lake Proposed Resource Management Plan (PRMP) May 2007, as one of the “premier peaks, panorama and vista points” in the Eagle Lake Field Office (PRMP, p 2-61). The PRMP recommends developing visitor information to encourage public awareness and enjoyment of the 10 mile dirt access road to the summit. Because this road is above treeline most of the way, the route provides excellent vistas along most of its length. The PRMP also recommends promotion of a scenic driving and riding loop on existing roads around the higher elevations of Fredonyer Peak (PRMP, p 2-60). Both of these recommended actions are based on the high scenic quality of the Fredonyer Peak area and the outstanding vistas available from the peak. These include views of Eagle Lake, Mt. Lassen, Mt. Shasta, high desert peaks to the northeast, east and south, as well as views of the northern end of the Sierra range.

The existing visual resource management (VRM) objectives established in the Willow Creek Management Framework Plan (6/83), for the Eagle Lake Basin classify most of the area, including the Fredonyer Peak ridgeline, as VRM Class II. The area east and south of Fredonyer Peak is classified as VRM Class IV. Based on existing VRM classification and objectives, Met Towers 1, 3, and 5 fall within VRM Class IV. Met Tower 4 is located within VRM Class II.

The Eagle Lake Proposed Resource Management Plan (PRMP), May 2007, once approved,

will establish different VRM objectives and classes than are in the current land use plan. The PRMP will establish VRM Class II objectives for most of the Fredonyer Peak area, including the locations of Met Towers 3, 4, and 5. The location of Met Tower 1 would continue to be within VRM Class IV.

The objective of VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape (BLM VRM Manual 8410-1, p 8).

The objective of VRM Class IV 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. These management activities may dominate the view and be the major focus of attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements (form, line, color and texture).

3.3.3 BLM Sensitive and Other Wildlife Species

There are no known federally listed species in the project area. Currently, the only wildlife species that is federally listed for the Eagle Lake Field Office (ELFO) is the Carson wandering skipper (*Pseudocopaeodes eunus obscurus*) butterfly. The habitat for this butterfly is alkaline-tolerant salt-grass (*Distichlis spicata*) and nearby nectar sources. The species also tends to occur near a water source, particularly geothermal springs, and nearly all of the occupied sites located during surveys conducted in 2004-2006 occurred between 3,970 and 4,030 feet in elevation. To date, no Carson wandering skippers have been documented on BLM ELFO lands.

Until recently, the bald eagle (*Haliaeetus leucocephalus*) was listed as federally threatened. On June 28, 2007, the Secretary of the Interior announced that the bald eagle was being removed from the Federal list of threatened and endangered species. The final rule delisting the bald eagle was published on July 9, 2007, and became effective on August 8, 2007. Following delisting, bald eagles will continue to be protected (along with golden eagles) under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act.

A wide variety of wildlife species can be found in or within the vicinity of the proposed project site. This is a result of the variety of habitats found within the proposed project area. Dominant vegetation includes sagebrush, juniper, some conifer habitats, and various forb/grass species. Additionally, Eagle Lake lies to the west of the project area, and Horse Lake lies to the east; bird and bat species could utilize the project area to fly between these two water bodies for migration, foraging, and other needs.

The project area lies within the western boundary of the Buffalo-Skedaddle Sage-Grouse Population Management Unit, however the specific project area along Fredonyer Peak receives little use by sage-grouse. Management actions contained within the *Conservation*

Strategy for Sage-Grouse (Centrocercus urophasianus) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-Grouse Working Group, 2006) relevant to wind energy, rights-of-way, and other uses will be implemented as appropriate.

Appendix 2 contains the following five tables which detail wildlife species potentially affected by the proposed action.

- Table 1: BLM Sensitive Species for the Eagle Lake Field Office (ELFO)
- Table 2: Other species of importance with special federal or California state designations (designations other than BLM Sensitive species)
- Table 3: Bat and owl species with the potential to occur in or near the Horse Lake Wind Energy Project, according to a query of the California Wildlife Habitat Relationships (CWHR) database (conducted by Entrix)
- Table 4: Species observed near the proposed met tower locations by Entrix personnel, Invenergy consultants, during preliminary site studies
- Table 5: Species observed (by met tower number) from survey sites including or near proposed met tower sites on BLM land (Towers 1, 3, 4, 5)

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This analysis of effects is based on the premise that design features which are intended to avoid or minimize environmental harm and which have been incorporated into the proposed action are treated as an inherent part of the action. The analysis is based on the best available information.

4.2 Predicted Effects on Relevant Affected Resources (Issues) of All Alternatives

4.2.1 Predicted Effects on Grazing within the Cottonwood and South Horse Lake Grazing Allotments

4.2.1.1 Effects of No Action Alternative (BLM would not authorize met towers)

Under this alternative, the BLM would not authorize Invenergy to install, operate, maintain and remove four met towers, therefore there would be no direct, indirect, or cumulative effects from the proposed action on grazing within the Cottonwood and South Horse Lake Allotments.

Livestock distribution and utilization would continue to be effected by existing uses and vehicular traffic as described in 3.3.1.

4.2.1.2 Effects of Proposed Action Alternative (BLM would authorize met towers)

Direct and Indirect Effects

The vehicle traffic associated with the installation and removal of the met towers would affect cattle use of the roads. However, effects would be very limited in time and would not result in any major modification of cattle distribution, and utilization, outside the installation period. Major modification is defined as changes in livestock distribution as contrasted with historic distribution.

The number of vehicle trips into the allotments for operation and maintenance of the met towers is only a slight increase from existing vehicle use in the allotments and, therefore, would not effect cattle use of the road, or subsequent utilization of the allotments.

Under this alternative, the installation of the met towers would result in approximately 21 vehicle trips into the allotments over a nine day period. Another 21 vehicle trips over nine days would occur when the towers are removed (approximately three years later). Four vehicle trips per month would occur throughout the period of the right-of-way for operation and maintenance.

Normally, disturbance from limited vehicle traffic traveling at a slow and safe speed does not disturb cattle distribution within the allotments. However, if vehicle traffic increases to several trips a day, cattle distribution can be disturbed or modified. The cattle and vehicles use the same jeep trails or roads to move about the area, and depending upon the speed of vehicle traffic, cattle movements and the use of specific areas may be influenced.

Cumulative Effects Analysis (*The cumulative effects analysis considers past, present and reasonably foreseeable future actions that would affect the resource/issue of concern within the geographic scope and the timeframe of the analysis.*)

Past Relevant Actions

Starting on or about March 23, 2007, Invenergy began preliminary site studies to collect data on wildlife resources within and adjacent to the area of their proposed Horse Lake Wind Project. These studies required vehicle access into the area to collect data at pre-determined survey locations. Table 5 details the number of vehicle trips per month into the Cottonwood and South Horse Lake Allotments.

Month	Vehicle Trips (No.)
March	3
April	5
May	20
June	36
July	28
August	24
September	32
Total	148

A total of 113 vehicle trips occurred during the grazing season.

Botanical surveys were conducted to determine if the met towers would impact any listed botanical species. The botanical surveys required 3 vehicle trips in June 2007 and one vehicle trip in July 2007. All of these trips occurred during the grazing season.

Cultural surveys were conducted to determine if there were any cultural resources at the proposed met tower locations. This work was conducted in approximately 2 vehicle trips. All of these trips occurred during the grazing season.

BLM administrative use, general recreation activity (not hunting) and permittee activities utilized the roads within the allotments totaling approximately 4 vehicle trips per month during the majority of the grazing season with a slight increase in recreational traffic during the hunting season.

In summary, approximately 139 vehicle trips occurred within the allotments during the grazing season in 2007. Based on the observations of the permittee, and the professional judgment of the BLM range management personnel, livestock grazing utilization was affected by this amount of vehicle activity in the allotments.

Present And Reasonably Forseeable Relevant Actions Not Part of the Proposed Action

The preliminary site studies would continue until March 2008. These studies will require vehicle access into the area to collect data at pre-determined survey locations. Table 6 details the anticipated vehicle trips per month into the Cottonwood and South Horse Lake Allotments.

Month	Vehicle Trips (No.)
October	36
November	27
December	18
January	18
February	18
March	18
Total	135

No vehicle trips during the grazing season are anticipated associated with the site studies. No further avian studies are identified at this time.

Owl surveys, not included in the avian studies, would be conducted on a maximum of two nights per week, March through August 2008. This totals 8 vehicle trips per month March through August. These vehicle trips would occur during the grazing season.

Acoustical bat surveys would be conducted at the met tower locations throughout the year. Approximately two vehicle trips per month to download the data may be necessary. This equates to two vehicle trips per month during the grazing season.

Lassen County is considering issuing a use permit to a private land owner within the Horse Lake Wind Project area to install a met tower. Access would be on the main Fredonyer Peak road and would consist of 12 vehicle trips to install and remove the tower, one vehicle trip per month to operate the tower, and one vehicle trip per month to maintain the tower. The use permit does not have a site restoration component. The use permit does not restrict when the tower would be installed or removed. This activity could occur during the grazing season but only on the main Fredonyer Peak road.

Cultural surveys for the Horse Lake Wind Project are planned for October and November of 2007. This would involve 2 vehicles per day for approximately 3 weeks. This totals approximately 30 vehicle trips. No vehicle trips during the grazing season are anticipated.

BLM administrative use, general recreation activity (not hunting) and permittee activities would also require use of the roads but this use is limited to probably no more than 4 vehicle trips per month during the grazing season

Invenenergy has proposed the Horse Lake Wind Project which would involve the installation, operation, maintenance and removal of approximately 67 wind turbines and associated ancillary facilities including power transmission lines, storage and maintenance, facilities etc. The viability and placement of this project is to some degree dependent on the information collected by the proposed action. If a final plan of development is submitted to the BLM, an environmental impact statement (EIS) would be written to disclose the impacts of the project. The activities associated with this project would affect cattle distribution and utilization patterns, however, these potential effects would be analyzed in an EIS if a plan of development is accepted. The EIS would analyze the increased vehicle activity, as well as other effects, associated with the proposed project and determine if any mitigation measures are necessary to reduce the impacts to grazing operations.

Summary of Cumulative Effects

The incremental impact of the proposed action when combined with past, present and reasonable foreseeable actions (not including the potential Horse Lake Wind Project) would have a minor cumulative effect to cattle distribution and utilization of the allotments. Minor cumulative effects would be seen from a slight increase in utilization in areas where previous grazing use was considered light. This increase would likely return to normal or historic use levels after the proposed activities were completed.

The grazing permittee for these allotments has alleged, and BLM range management personnel concur, that past relevant actions (preliminary site studies, approximately 139 vehicle trips) associated with the Horse Lake Wind Project resulted in greater utilization of portions of the allotments due to increased vehicle activity in the area. Multiple trips through these areas disturbed the historic movement of cattle, especially in the Cottonwood Allotment, and thus resulted in increased utilization of certain areas within the allotment. Short-term increases in utilization are not a significant matter of concern, and no documented utilization studies were conducted in 2007 to quantify utilization levels in the allotment. A brief inspection of the allotment in June 2007 by BLM range

staff did not indicate unusual or above average utilization early in the grazing season, which is what would be expected. However, utilization studies were not done at the end of the grazing season to compare with the earlier observations to document whether use levels exceeded management objectives.

Cattle distribution in the allotments as a result of installation and removal of met towers would not result in utilization issues due to the limited time frame during which the increased vehicle activity would occur. Operation and maintenance activities associated with the proposed action would not have an effect.

Presently, 16 vehicle trips per month within the allotment are occurring or foreseeable. If the met tower on private land is authorized, an additional 6 vehicle trips over a three day period would occur on the main Fredonyer Peak road. Cattle distribution in the allotments as a result of this vehicle activity would not result in utilization issues due to the limited time frame during which the increased vehicle activity would occur.

If additional avian or other preliminary site studies are conducted which are, at this point in time, not foreseeable, the BLM will conduct utilization studies to specifically quantify allotment utilization. The BLM will work with Invenergy and the permittee to reduce or mitigate any potential effects to cattle distribution.

4.2.2 Predicted Effects on Visual Resources

4.2.2.1 Effects of No Action Alternative (BLM would not authorize met towers)

Under this alternative, the BLM would not authorize Invenergy to install, operate, maintain and remove four met towers, therefore there would be no direct, indirect, or cumulative effects from the proposed action on visual resources management.

4.2.2.2 Effects of Proposed Action Alternative (BLM would authorize met towers)

Direct and Indirect Effects

The installation and operation of Met Towers 1, 3, and 5 are consistent with VRM Class IV objectives, therefore, VRM Class IV objectives would be met. Based on VRM contrast ratings completed for all met towers from the Key Observer Points (KOPs) listed below, all met towers would have weak or no visual contrasts as viewed from the KOPs. Met Tower 4 would not be readily evident to the casual observer and therefore would not have an adverse affect on visual resources in the Class II area and VRM Class II objectives would be met. The tower would be visible under certain circumstances, however its narrow width and low visibility, or invisibility the majority of the time, would be consistent with VRM Class II objectives (where a visual contrast may be seen but should not attract the attention of the casual observer).

If the Proposed Eagle Lake Field Office RMP is adopted, the VRM classification for proposed Met Towers 3 and 5 would be changed to VRM Class II. Proposed Met Tower 4 would remain in a VRM Class II area. Proposed Met Tower I would remain in a VRM

Class IV area. The VRM contrast ratings completed as part of this EA conclude that all proposed met towers would meet VRM Class II objectives because of the small size of the towers and viewing distances that the towers would be seen from.

Met towers are tall and narrow (10” to 12” in diameter at the base tapering to 8” in diameter at the top of the 191 foot tower). The towers tend to disappear into the sky or landscape when viewed from the distances where most observation would occur, 4 to 10 miles away (See Table 5. Viewing Distances from Met Towers to Key Observer Points). Although the Key Observer Points (KOP) selected are not inclusive of all areas where the met towers would be viewed from, the KOPs are representative of areas where most viewing of the Fredonyer Peak ridgeline occurs, and where met towers would be viewed if installed as proposed.

Table 7. Viewing Distances from Met Towers to Key Observer Points

Met Tower	Met Tower Location*	Key Observer Points (KOP) Locations	Viewing Direction from KOP	Viewing Distance from KOP to Met Tower (miles)
1	T 34 N R 12 E Sec 32 NE1/4Se1/4	Stone’s Boat Ramp, Eagle Lake north end	NE	5.4
		Termo Grasshopper Road SW facing straight away in T 34 N R 13 E Sec 7	SW	5.8
3	T 33 N R 12 E Sec 35 SE1/4	Junction of Highway 139 and Horse Lake Road	N	10
4	T 33 N R 12 E Sec 10 NW1/4	Highway 139 .1 mile north of Walsh Mountain summit (crest between Willow Creek Valley and Eagle Lake)	NE	2.8
		Stone’s Boat Ramp, Eagle Lake north end	SE	7.2
5	T 33 N R 12 E Sec 14 NE1/4	Junction of Highway 139 and Horse Lake Road	N	7.5
		Junction of Highway 139 and Barron Ranch Road	NE	4.5

*See Map of Met Towers Locations, Attachment 1.

Photos 1 and 2 (Attachment 3) depict how a met tower on Shaffer Mountain disappears into the skyline. Photos 3 and 4 depict a view of the same met tower from Highway 395 near the BLM Wild Horse Corrals, 4.6 miles from the met tower. Photos 5 and 6 show views of a met tower on Antelope Mountain.

As part of preparing contrast ratings for the proposed met towers, numerous photos of the existing met tower on Antelope Mountain were taken at seven different locations, ranging from 5.75 to 0.6 miles away. Full frame, partial zoom (approximately 5X) and full zoom (10X) photos were taken with a Cannon Power Shot S1 IS digital camera with a 5.8 to 58 mm zoom lens. These photos show that the towers are not readily apparent beyond two miles away. Even when viewed closer than two miles, the met tower’s visibility varies with lighting and sky conditions. This met tower can be seen from over 5 miles away when the sun reflects off of it, but that occurs only during limited periods of the day when the sun reflects off the tower and back to a fixed observation location. As the sun moves, the reflection changes and increases or decreases the visibility of the tower from any fixed viewing location.

In addition to the low visibility of the met towers due to viewing distance, intervening topography would also create some screening of most of the towers as viewed from the Eagle Lake Basin. Met Tower 1 would not be seen from the Willow Creek Valley. An intervening ridgeline appears to block the view of this tower from the Eagle Lake Basin. If the tower is visible, it may only be partially seen from the Eagle Lake Basin when bright sunlight reflects off the top of the tower late in the day. There is little intervening topography between Met Towers 3 and 5 and the Willow Creek Valley. However, viewing distances of 7.6 miles to Met Tower 5 and 10 miles to Met Tower 3 would make these towers very difficult to see from the junction of the Horse Lake Road and Highway 139 (the representative KOP selected for Willow Creek Valley). Met Tower 4 would be seen from the Eagle Lake Basin, however, viewing distances greater than two miles would make it hard to see. Met Tower 4 would be seen from Highway 139 (north of Walsh Mountain summit) from a distance of 2.8 miles, however it would not be readily evident due to the viewing distance, except when reflected sunlight shines on the tower late in the afternoon. Also, viewing time of the tower for north bound traffic along Highway 139 is limited to approximately 5 seconds at 55 mph in the area where the tower can be seen.

Met towers would be visible, even at viewing distances of 10 miles or more, when sun lighting conditions and viewer angle combine so that the viewer sees a bright shiny reflection off the tower. Towers may also be visible when frost collects on the towers and wires, and the sun reflects off of them. Towers on Antelope Mountain, Shaffer Mountain and Diamond Mountain can be seen from over 10 miles away at certain times of the day when the sun reflects off the towers. However these same towers tend to disappear into the sky most of the time.

Since lighting angles change throughout the day, towers would become more or less visible depending on where the towers are being viewed from. This applies primarily to the east, south and west sides of met towers where direct sunlight strikes and reflects off them, as compared with indirect light that enables viewers to see the towers but does not reflect off them for great distances. Examples of times when the towers are less visible would be 1) during overcast or cloudy days, and 2) during most of the day when the sun is not aligned with the curved surface of the narrow towers in such a way that it reflects bright light directly back to a fixed location (e.g. a home, activity area or a segment of a well traveled road). Rather, such bright reflected light being seen at fixed locations would occur during a relatively short period of the day when the sun's angle of reflection aligns with the viewing location. As the sun passes through the sky, there would be a short period of increased visibility when the reflection angle is brightest at a fixed viewing location. The towers would be more visible at that point and then the bright reflection would decrease, reducing the tower's visibility as the sun moves on.

Cumulative Effects

Analysis of Cumulative Effects

While the existing facilities on Fredonyer Peak have an effect on visual resources, there are no present or reasonably foreseeable relevant actions in addition to the proposed

action of installing four met towers that would affect visual resources. Therefore, the proposed action of installing four met towers, which is determined in this analysis to not significantly affect visual resources, when considered cumulatively with the past, present, or reasonable foreseeable actions, would not adversely affect visual resources.

Past Relevant Actions

Fredonyer Peak contains an existing fire lookout and communication facilities, which include one large tower, solar panels, and several small antennae.

Present Relevant Actions Not Part of the Proposed Action

No other similar towers are being installed within or adjacent to the project area.

Reasonably Forseeable Relevant Actions Not Part of the Proposed Action

Invenergy has proposed the Horse Lake Wind Project which would involve the installation, operation, maintenance and removal of approximate 67 wind turbines and associated ancillary facilities including power transmission lines, storage and maintenance facilities, etc. It is anticipated that such a wind development project would have significant visual impacts which would have to be analyzed in an environmental impact statement (EIS). This EIS would require a thorough analysis of the visual impacts from all aspects of the development, including the construction and maintenance of the wind farm's access roads, wind turbines and transmission lines.

Development of a wind farm on Fredonyer Peak and Horse Lake Mountain would require amendment of the current land use plan (6/83) and the Eagle Lake Proposed Resource Management Plan (May 2007). Both plans have classified the Fredonyer Peak ridge area as VRM Class II, where changes to the landscape can be seen but should not attract attention of the casual observer. The installation of the proposed met towers meet this objective, however development of a wind farm would not meet this objective. This analysis addresses only the met towers, not the development of a wind farm.

4.2.3 Predicted Effects on BLM Sensitive Species and Other Wildlife Species

4.2.3.1 Effects of No Action Alternative (BLM would not authorize met towers)

Under this alternative, the BLM would not authorize Invenergy to install, operate, maintain and remove four met towers, therefore there would be no direct, indirect, or cumulative effects from the proposed action on BLM sensitive species or other wildlife species.

4.2.3.2 Effects of Proposed Action Alternative (BLM would authorize met towers)

Direct and Indirect Effects

Although the presence of a variety of wildlife species within or adjacent to the areas potentially affected by the proposed action is unquestionable, the potential effects to these species are not as quantifiable. An accounting of potential affects to these species follows, however, with the incorporation of bird diverters on the guy wires, no specific effect to any of the species present was identified.

Utilization of the staging area could temporarily or permanently displace wildlife also utilizing the area. Wildlife could also be affected by human and vehicular disturbance associated with utilization of this area.

Authorizing vehicular access to sites (for all purposes, including installation, operation, maintenance, and removal) could result in human and vehicular disturbance of wildlife. Off-road vehicle travel to Met Tower 1 would result in disturbance to wildlife in previously undisturbed areas, and would result in some crushed vegetation (approximately 10 feet by 420 feet).

Tower construction activities would result in vegetation removal and disturbance within the 328-foot by 328-foot footprint of each tower and associated cables/wires. This in turn could result in disturbance and displacement of wildlife species, due to vegetation modification and also the associated human and vehicular disturbance. If generators or compressors are used, noise disturbance could also be a factor. Cutting of smaller vegetation or trees could result in the removal of shelter, cover, and perching habitat for birds, bats, the Northern sagebrush lizard and other wildlife species. Towers and guy wires have the potential to injure or kill wildlife, particularly bird and bat species, due to collision. The project will require painting the towers and installing bird diverter devices on guy wires as mitigation measures to minimize or prevent injury and mortality issues.

If fence panels or other fencing is deemed necessary around guy wire anchor points, additional effects could occur from collisions with fences, or fences serving as perching points for predators. Positive effects include general perching spots for birds, and protection of vegetation (habitat) within the fenced areas. Without fences, there is the slight chance that mule deer could encounter guy wires and/or entangle their antlers in them.

Restoration activities would likely result in some temporary disturbance to wildlife species due to human and vehicular presence; however, overall restoration/rehabilitation activities at tower and anchor point locations will be beneficial in restoring these sites to their former habitats.

Invenenergy began preliminary site studies to collect data on wildlife resources within and adjacent to the area of the proposed Horse Lake Wind Energy Project in March 2007. Surveys found no “active” raptor nests within one mile of any proposed met tower location. No known raptor nests were found within one mile of the proposed locations of

Met Towers 1 and 3; one old unknown raptor/large bird nest was located within one mile of each of the proposed locations of Met Towers 4 and 5. Disturbance to nesting birds or disturbance to reproductive efforts of other wildlife could result in effects to species; however, the activities associated with the proposed action are expected to result only in minor disturbance or habitat modification.

The proposed action would not affect the Carson wandering skipper because it is proposed on a ridge, outside its normal habitat.

Cumulative Effects

Analysis of Cumulative Effects

Increased vehicular traffic and human presence associated with preliminary site studies have the potential to increase disturbance and displacement of wildlife and wildlife habitat. In addition, the proposed action could result in injury or mortality to wildlife, however painting of towers and installation of bird diverters on guy wires will strive to minimize or avoid this. Eventual removal of towers and rehabilitation of met tower sites will benefit wildlife and wildlife habitat. Overall, the proposed action, when considered cumulatively with the past, present, and foreseeable actions, not including those to be analyzed in an EIS, is expected to result in minor effects to BLM sensitive species and other wildlife.

Past Relevant Actions

There is an existing fire lookout and communication site on Fredonyer Peak. These facilities include one large tower, a solar panel array, and several small antennae. These facilities have negligible to minor effects on wildlife and wildlife habitat.

Vehicle access has occurred within the proposed project area for a variety of reasons related to the proposed project, including wildlife resource data collection, botanical surveys, cultural surveys, general recreation activity, hunting activity, livestock permittee activities, and BLM administrative use, among others. Over 150 vehicle trips have been documented since March 2007. The potential for disturbance to wildlife increases with increased vehicular activity, and the associated human presence.

Present Relevant Actions Not Part of the Proposed Action

Preliminary site studies (primarily to collect wildlife resource data) continue each month and anticipated vehicle trips are included in the following section.

Reasonably Forseeable Relevant Actions Not Part of the Proposed Action

Preliminary site studies to collect avian data would continue at least through March 2008, requiring continued vehicle access, and potential disturbance to wildlife from vehicular and human presence. In addition, owl surveys would be conducted from a minimum of March through August 2008. Acoustical bat surveys would be conducted at met tower

locations at a minimum from mid-July through November 1, 2008; approximately two vehicle trips per month to download the acoustical data would likely be necessary. Cultural surveys for the Horse Lake Wind Energy Project are planned for October and November of 2007. This would involve two vehicles per day for approximately three weeks (approximately 30 vehicle trips overall). All of these trips would result in potential increased disturbance and displacement to wildlife due to vehicular and human presence.

Invenergy has proposed the Horse Lake Wind Energy Project which would entail the installation, operation, maintenance, and removal of approximately 67 wind turbines and associated ancillary facility including power transmission lines, storage and maintenance facilities, etc. The activities associated with this project would affect wildlife and wildlife habitat more significantly; however the potential effects of this project would be analyzed in an environmental impact statement (EIS) if a plan of development is accepted.

5.0 CONSULTATION & CORDINATION

5.1 Persons, Groups and Agencies Consulted

Last Name	First Name	Organization Name
Aleck	Ben	Pyramid Lake Paiute Tribe
Anderson	Irene	California Department of Forestry
Balding	Martin	
Boyce	Robert	Pit River Tribe of California
Delfino	Kim	Defenders of Wildlife
DeLorme	Mace	
DeSpain	Michael	Greenville Rancheria
Dixon	Stacy	Susanville Indian Rancheria
Eben	Michon	Reno-Sparks Indian Colony
Ehler	Brian	California Department of Fish and Game
Fletcher	Tammy	Eagle Lake Regional Preservation Coalition
Giblin	Matt	Invenergy Wind - North America
Hagata	Daren and Patricia	
Hagata	Frank and Daren	
Haney	Eric	California Department of Fish and Game
Hanson Jr.	John	
Henson	Ryan	California Wilderness Coalition
Hund	Geary	The Wilderness Society
Ireland	LaVerne H.	Mother Lode Chapter, Sierra Club
Jambois	Wayne	Organized Sportmen Lassen County
Jim	Jessica	Pit River Tribal Council
Johnson	Gordon	California Wilderness Legacy Project
Keesey	Tim	Susanville Indian Rancheria
Kegg	John and Virginia	
Larsen	Carol	
Lile	David	Lassen County Cooperative Extension Service
Melendez	Arlan	Reno-Sparks Indian Colony
Norwood	Gaylon	County of Lassen, Department of Community Dev.
O'Neil	Harold	

Last Name	First Name	Organization Name
Sanchez II	Joe	
Swickard	Todd	Five Dot Land and Cattle
Swickard	Tim	Somach, Simmons & Dunn
Wald	Johanna	Natural Resources Defense Council
Walker	Waldo	Washoe Tribe of Nevada and California
Wilson	Rose	
Wood	Dennis	Lassen Co. Cattlemen's Assoc.
Wood	Ed	
Wright	Mervin	Pyramid Lake Paiute Tribal Council
		Lassen County Fish and Game Commission
		Lassen County Community Development
		Washoe Tribe of Nevada and California
		Greenville Rancheria
		California Wilderness Coalition
		Sierra Club - Mother Lode Chapter

5.2 List of Preparers

Name	Resource/Activities	Project Role
Sharynn Blood	Cultural/Paleo	Interdisciplinary Team
Duane Jackson	Land / Realty	Project Lead Interdisciplinary Team
Ralph Mauck	Range Management Specialist / Riparian/Wetlands Coordinator	EA Preparer Interdisciplinary Team
Mike Kuyper	Range Management Specialist / Environmental Coordinator	Interdisciplinary Team
Patrick Farris	Range Management Specialist	Interdisciplinary Team
Carolyn Gibbs	Vegetation, T&E/Sensitive	Interdisciplinary Team
Josh Gibbs	Noxious Weeds	Interdisciplinary Team
Stanley Bales	Recreation/ Visual Resources Management	EA Preparer Interdisciplinary Team
Missi Nelson	Wildlife	EA Preparer Interdisciplinary Team
Don Dockery	Forestry	Interdisciplinary Team
Wade Salverson	Forestry	Interdisciplinary Team
Ed Merrill	Fuels Specialist	Interdisciplinary Team
Sue Noggles	NEPA Planner	EA Preparer Interdisciplinary Team

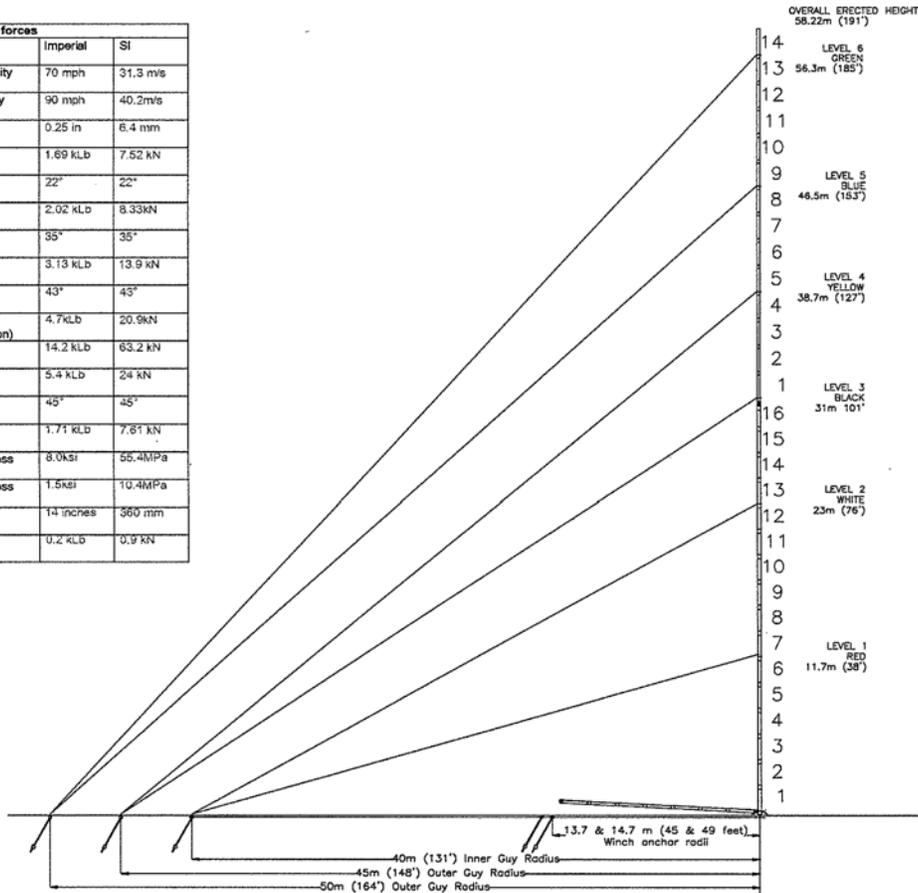
Appendix 1 - Met tower schematic

60 Meter Heavy Duty Tall Tower Design Loads

Materials						
Item	Outer Diameter	Wall Thickness	Description	Yield Strength	Breaking Strength	Corrosion Protection
1	10 inch 254 mm	0.090 inch 2.3 mm	MT 1020	45.0 ksi 310 mPa	N/A	Hot Dipped Galvanized
2	10-2 inch taper 254-203 mm	0.109 inch 2.8 mm	MT 1020	30.0 ksi 214 mPa	N/A	Galvanized ASTM 653
3	8 inch 203 mm	0.095 inch 2.4 mm	MT 1020	45.0 ksi 310 mPa	N/A	
4	0.250 inch 6.35 mm		7x19 Galv Akraft		7.0 klb 31.2 kN	Galvanized
5						
6						

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	PRELIMINARY RELEASE	20 JUL 06	RPS
B	MAT'L 4 WAS 0.250, UPDATED TBD's	14 DEC 06	RPS

Reactions and member forces		
	Imperial	SI
10 m (33 feet) wind velocity (Fastest mile)	70 mph	31.3 m/s
Top of tower wind velocity (Fastest mile)	90 mph	40.2 m/s
Radial ice thickness	0.25 in	6.4 mm
Inner guy anchor force	1.69 kLb	7.52 kN
Inner guy anchor force (angle from horizontal)	22°	22°
Middle guy anchor force	2.02 kLb	8.33 kN
Middle guy anchor force (angle from horizontal)	35°	35°
Outer guy anchor force	3.13 kLb	13.9 kN
Outer guy anchor force (angle from horizontal)	43°	43°
Tower base force (horizontal- during erection)	4.7 kLb	20.9 kN
Tower base force (vertical)	14.2 kLb	63.2 kN
Erection anchor force	5.4 kLb	24 kN
Erection anchor force (angle from horizontal)	49°	45°
Maximum guy tension	1.71 kLb	7.61 kN
Maximum tower tube stress (compression)	8.0 ksi	55.4 MPa
Maximum tower tube stress (tension)	1.5 ksi	10.4 MPa
Maximum top deflection	14 inches	360 mm
Initial guy tension	0.2 kLb	0.9 kN



Notes

- A) Wind forces and allowable member loads are calculated using ANSI TIA/EIA-222-F, (1996), "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures".
- B) Wind speeds are fastest mile wind velocity per EIA-222-F. EIA-222-F wind loading coefficients: Gf=1.69, Cf=1.0, a=2/7.
- C) Fastest mile (fm) wind speed can be approximately converted to three second (3sec) wind speed using the equation:
 $V(3sec) = 1.22 V(fm)$ for $V(fm) \leq 100$ mph
- D) Guy joint efficiency = 0.9 and the guy safety factor is greater than or equal to 2.0.
- E) An ANSYS large deflection FEA model using beam (Pipe16) and tension (Link10) elements with distributed wind load was used to calculate member forces and reactions.
- F) Tower allowable stress design per American Institute of Steel Construction (AISC) "Allowable Stress Design", 9th Ed. 1989, Chapter H, equations H1-1, H1-2.
- G) This tower design meets the structural requirements of EIA-222-F, sections 1.2, 3.0.9 for the given loading condition. This analysis does not apply to EIA-222-F sections 7.1.1, 12.13.
- H) Foundation design must be considered separately and is not a part of this analysis. Specific foundation details must be approved for the specific application and site by a qualified professional.
- I) A locally qualified professional must determine the applicability of this analysis for the expected site conditions. Due to the lack of involvement in the siting or construction phase of this product at a specific location, liability is strictly limited to issues arising from negligence or willful misconduct by NRG or the professional engineer completing this analysis. No warranty, expressed or implied, is made concerning the suitability of this product for a given application or location.

Units notation

- mm - Millimeters
- m - Meters
- m/s - Meters per second
- kN - 1,000 Newtons
- mPa - 1,000,000 Pascals
- kLb - 1,000 US pounds
- ksi - 1,000 US pounds per inch²
- mph - Miles per hour
- Ø - Diameter

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

FRACTIONS DECIMALS ANGLES
 $\pm 1/64$.XX $\pm .015$ $\pm 1'$
 .XXX $\pm .005$

DO NOT SCALE DRAWING

MATERIAL:

FINISH:

THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF NRG SYSTEMS INC. AND MUST BE MAINTAINED IN CONFIDENCE. NO PORTION OF THE DRAWING MAY BE REPRODUCED OR USED WITHOUT THE EXPRESS PERMISSION OF THE COMPANY.

APPROVALS DATE

DRAWN Paul Smith 21 Jul 06

CHECKED

ISSUED

NRG SYSTEMS INC

110 COMMERCE STREET, HINESBURG, VT., 05461

TITLE
 60 Meter Heavy Duty Tall Tower
 Preliminary Specifications

SIZE B
 ENG. NO. N4047
 REV B

SCALE NTS SHEET 1

Appendix 2 - Wildlife tables

Table 1
ELFO BLM SENSITIVE SPECIES

Common Name	Scientific Name
Pygmy rabbit (*)	<i>Brachylagus idahoensis</i>
Pacific fisher (*)	<i>Martes pennanti pacifica</i>
Townsend's western big-eared bat	<i>Plecotus townsendii</i>
Pallid bat	<i>Antrozous pallidus</i>
Fringed myotis	<i>Myotis thysanodes</i>
Small-footed myotis	<i>Myotis ciliolabrum</i>
Long-eared myotis	<i>Myotis evotis</i>
Yuma myotis	<i>Myotis yumanensis</i>
Spotted bat (*)	<i>Euderma maculatum</i>
Western mastiff bat (*)	<i>Eumops perotis</i>
Northern goshawk	<i>Accipiter gentilis</i>
California spotted owl	<i>Strix occidentalis occidentalis</i>
Burrowing owl (*)	<i>Athene cunicularia</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Tricolored blackbird (*)	<i>Agelaius tricolor</i>
Northern sagebrush lizard	<i>Sceloporus graciosus graciosus</i>

(*) Not thought to occur within the ELFO, or not expected to be affected by this project.

Table 2
ADDITIONAL SPECIES OF SPECIAL STATUS DESIGNATIONS

Common Name	Scientific Name	Species Designation
Western yellow-billed cuckoo (*)	<i>Coccyzus americanus</i>	FC, SE
Bald eagle	<i>Haliaeetus leucocephalus</i>	FEPA, SE
Golden eagle	<i>Aquila chrysaetos</i>	FEPA
Peregrine falcon	<i>Falco peregrinus</i>	SE
Willow flycatcher (*)	<i>Empidonax traillii</i>	SE
Greater sandhill crane	<i>Grus canadensis tabida</i>	ST
Swainson's hawk	<i>Buteo swainsoni</i>	ST

FC=Federal candidate status for listing;
 FEPA=Federal Bald and Golden Eagle Protection Act;
 SE=State listed as endangered;
 ST=State listed as threatened

(*) Not thought to occur within the ELFO, or not expected to be affected by this project.

Table 3
LIST OF ADDITIONAL BAT AND OWL SPECIES WITH THE POTENTIAL TO
OCCUR IN OR NEAR THE HORSE LAKE WIND ENERGY PROJECT
(ACCORDING TO ENTRIX'S QUERY OF CWHR DATABASE)

Common Name	Scientific Name
Little brown myotis	<i>Myotis lucifugus</i>
Long-legged myotis	<i>Myotis volans</i>
California myotis	<i>Myotis californicus</i>
Silver-haired bat	<i>Lasionycteris nactivagans</i>
Western pipistrelle	<i>Pipistrellus hesperus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Hoary bat	<i>Lasiurus cinereus</i>
Brazilian free-tailed bat	<i>Talarida brasiliensis</i>
Barn owl	<i>Tyto alba</i>
Flammulated owl	<i>Otus flammeolus</i>
Western screech owl	<i>Otus kennicottii</i>
Great horned owl	<i>Bubo virginianus</i>
Northern pygmy owl	<i>Glaucidium gnoma</i>
Long-eared owl	<i>Asio otus</i>
Short-eared owl	<i>Asio flammeus</i>
Northern saw-whet owl	<i>Aegolius acadicus</i>

**Table 4
SPECIES OBSERVED DURING SURVEYS TO DATE**

Species observed from survey sites including or near proposed Met Tower sites on BLM land (Towers 1,3,4,5)

Species	Distance from Site			Total Observations
	< 100 m	100-500 m	>500 m	
American kestrel	1	1	1	3
Bald eagle		1		1
Common raven			2	2
Gull sp.	1		20	21
Northern harrier		1		1
Peregrine falcon	1			1
Red-tailed hawk	1	5	3	9
Swainson's hawk		1		1
Turkey vulture		20	6	26
Unknown Raptor			1	1

Table 5
SPECIES OBSERVED FROM SURVEY SITES INCLUDING OR NEAR PROPOSED
MET TOWER SITES.

Species observed from survey sites including or near proposed Met Tower sites on BLM land (Towers 1,3,4,5)

Met Tower	Species	Distance			Total Observations
		< 100 m	100-500 m	>500 m	
1	American kestrel	0	0	1	1
	Common raven	0	0	1	1
	Gull sp.	1	0	20	21
	Red-tailed hawk	0	1	1	2
	Swainson's hawk	0	1	0	1
	Turkey vulture	1	10	3	14
	Unknown raptor	0	0	1	1
	Golden eagle	0	1	0	1
3	Red-tailed hawk	1	2	1	4
	Turkey vulture	0	3	2	5
4	American kestrel	0	1	0	1
	Bald eagle	0	1	0	1
	Common raven	0	0	1	1
	Red-tailed hawk	0	2	1	3
	Turkey vulture	0	5	1	6
5	American kestrel	1	0	0	1
	Northern harrier	0	1	0	1
	Peregrine falcon	1	0	0	1
	Turkey vulture	0	1	0	1

Notes:

Includes species and numbers of individuals seen from plots either encompassing or surrounding met towers.

Includes information from sites D, H, I, J, K, M, P, R, T.

Met Tower 1 does not fall within a site survey area - it is closest to R, T, and P.

Met Tower 3 is within the Site K survey area.

Met Tower 4 does not fall within a site survey area - it is between J and I.

Met Tower 5 is within the Site H survey area.

Attachment 1 - Map of proposed tower locations and staging area

Attachment 2 - Map of grazing allotments

Attachment 3 - VRM Photos