
5.0 RESOURCES VALUES AND ENVIRONMENTAL ISSUES

5.1 LAND USE

The lands covered by the Wind Monitoring ROW and the privately held lands within the ROW boundary cover 26,000 acres or approximately 40 square miles. The total area estimated to be utilized by the wind energy facility (including temporary disturbance) is approximately 553 acres or 0.87 square miles. Therefore, the percentage of land including all facilities and temporary disturbance is estimated to comprise approximately 2.1% of the total ROW. The permanent footprint of the wind energy facility will only comprise 0.5% of the ROW. Large areas of open, undeveloped land will exist between the individual turbines. This space is necessary for the free-flow of wind, which results in efficient, safe, long-term operation of the wind turbine generators.

5.2 BIOLOGICAL RESOURCES

The following is a summary of data reviews and special status species that may occur within the vicinity of the ROW. Through the environmental review and permitting processes, a site specific plan for avoiding and/or mitigating impacts to these biological resources will be created. Project-specific avoidance and mitigation measures will be incorporated into the final design, the Environmental Impact Statement (EIS), and the Environmental Compliance Plan.

5.2.1 Background

The proposed Searchlight Wind Energy Facility site (see Figure 2-1) is located in Clark County, Nevada, within the Mojave Desert biome. The lands are managed by the BLM's Las Vegas Field Office and covered by the BLM Las Vegas Resource Management Plan and Final Environmental Impact Statement [5]. Biologically, flora and fauna within the Mojave Desert biome have adapted to the local conditions and formed distinct natural communities, including species not found anywhere else (i.e., endemics). The area is a part of the high desert, ranging in elevation from roughly 1,800 to 4,400 feet, and is characterized by creosote bush- and mixed scrub-dominated plant communities.

5.2.2 Literature and Data Research and Field Reconnaissance

Existing biological resource data sources were reviewed to determine the potential for special status species to occur in the proposed Searchlight Wind Energy Facility ROW. This review included federally-listed sensitive-species from lists provided by of the USFWS office for Clark County [6], the BLM list of special status species [7] and the Nevada Natural Heritage Database. A BLM list of plant and animal sensitive species for this area was also reviewed. Based upon review of this information, special-status plant and animal species with the potential to occur in the ROW are summarized in Table 5-1.

Special-status species are legally protected under Nevada state law, BLM, and the Endangered Species Act (ESA). For purposes of this Plan of Development, special-status species are defined as:

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register [FR] for proposed species);
- Species that are candidates for possible future listing as threatened or endangered under ESA (67 FR 40657, June 13, 2002);
- Species that are federal species of concern;
- Species that are listed or proposed for listing by the state of Nevada as threatened or endangered (Nevada Revised Statute [NRS] 527.260-300 and NRS 527.060-120);
- Animal species fully protected in Nevada;
- Animal species of concern to the Nevada Division of Wildlife (NDOW) and NNHP; and
- Species designated as sensitive by BLM or a species of special management concern to BLM and managed specifically.

In addition to the literature review, a reconnaissance-level, habitat based assessment was conducted during a field visit on February 2 and 3, 2007, to support permitting for the meteorological tower ROW authorization. Plant communities present, potential habitat for special-status species, and presence or evidence of special-status species were noted when detected. It should be noted that the survey date was too early in the season for some annual and herbaceous perennial plants to be evident. Observations from the field visit are summarized herein. Species observed during the field reconnaissance are summarized in Table 5-2.

Table 5-1. Special-Status Plant and Animal Species with Potential to Occur within the ROW

Resource	Status ^{1/}			Habitat and Distribution	Activity/ Bloom Period	Occurrence Probability
	Federal	State	BLM			
Plants						
Las Vegas bearpoppy <i>Arctomecon californica</i>	SC	P	S	Open, dry, spongy or powdery, often dissected or hummocked soils with high gypsum content, often with well-developed soil crust, in areas of generally low relief on all aspects and slopes, with a sparse cover of other gypsum-tolerant species surrounded by <i>Larrea tridentata</i> , <i>Atriplex</i> , and <i>Coleogyne ramosissima</i> associations.	Mar-Jun	Low. It is only found in the northern part of Clark County, Nevada, and a few sites in northwest Arizona. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species. The area was surveyed outside of the normal blooming period, but the basal rosette leaf structure is identifiable during winter periods.
Yellow two-tone beardtongue <i>Penstemon bicolor</i> ssp. <i>bicolor</i>	SC	None	S	Calcareous or carbonate soils in washes, roadsides, rock crevices, outcrops, or similar places receiving enhanced run-off, in the creosote-bursage, blackbrush, mixed-shrub, and lower juniper zones.	Apr-May	Low. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species. Although it was surveyed outside of the normal blooming period, the unusual leaf arrangement of this perennial is identifiable during winter periods.
All cacti and yuccas	None	P	None	Dry, rocky slopes in the Mojave Desert	March-May	High. Initial field survey associated with meteorological tower ROW permitting showed yuccas to be abundant within the ROW.
Amphibians/Reptiles						
Desert tortoise <i>Gopherus agassizii</i>	T	P	S	Found in desert shrubland habitat in the Mojave Desert at about 1,000 to 4,000 feet in elevation.	Mar-Nov	High. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species. However, a burrow was identified within the ROW. The topography, habitat, nearby installations of BLM wildlife water stations, and their proximity to desert tortoise critical habitats suggest that the ROW has a high likelihood of desert tortoise presence.
Banded Gila monster <i>Heloderma suspectum cinctum</i>	None	P	S	Found in most habitats throughout its range. It is common in areas with Saguaro cactus and along washes at elevations from near sea level to 4,100 feet. Its range is limited to regions that receive several inches of rain during the summer months and have mild winters and hot summers.	Mar-Nov	Low. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species, nor of any sign of their presence.
Chuckwalla <i>Sauromalus ater</i>	None	P	S	Rocky areas within the Great Basin, Mohave, and Sonoran deserts.	Mar-Nov	Low. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species, nor of any sign of their presence.
Birds						
Yellow-billed cuckoo <i>Coccyzus americanus</i>	C	None	None	Streamside cottonwood, willow groves, and larger mesquite or other vegetation for migrating and breeding preferred. Rarely observed as transient in xeric desert or urban settings.	Year-round	Low. Preferred habitat is not present within the ROW, and an avian point count (avian use) study conducted during fall 2007 did not identify any individuals of this species.

Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	E	P	None	In Nevada, breeds along the Virgin River, lower Muddy River, Colorado River, and Pahrnagat Valley in dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands. Nests in native vegetation (willows, seepwillow, boxelder, buttonbush, cottonwood), but also uses thickets dominated by non-native tamarisk and Russian olive, or in mixed native non-native stands.	May-Aug	Low. Preferred habitat is not present within the ROW, and an avian point count (avian use) study conducted during fall 2007 did not identify any individuals of this species.
Bald eagle <i>Haliaeetus leucocephalus</i>	T	P	None	Found mostly along rivers and coastlines where tall trees are available for nesting. Most found in Nevada are wintering here, though occasionally, nesting pairs are found in the northern part of the state.	Year-round	Low. Preferred habitat is not present within the ROW, and an avian point count (avian use) study conducted during fall 2007 did not identify any individuals of this species.
Le Conte's Thrasher <i>Toxostoma lecontei</i>	None	P	S	Prefers arid, sparsely vegetated habitats, Uncommon over most of range	Year-round	Moderate. Habitat present within ROW. However, an avian point count (avian use) study conducted during fall 2007 did not identify any individuals of this species.
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	E	P	None	Lower Colorado River (LCR) from Gulf of California in Mexico to Virgin River and Las Vegas area in northern Arizona and Nevada, with concentrations in the U.S. along the LCR from the vicinity of Laughlin, Nevada to Yuma, Arizona.	Year-round	Low. Preferred habitat is not present within the ROW, and an avian point count (avian use) study conducted during fall 2007 did not identify any individuals of this species.
Mammals						
Desert Bighorn Sheep <i>Ovis canadensis nelsoni</i>	None	None	S	Occupy the Mojave Desert and Great basin Desert regions of central and southern Nevada	Year-round	Moderate. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any individuals of this species. However, the northern margin of the ROW boundary is located approximately one half mile from crucial or winter bighorn sheep habitat.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	None	Prop	S	Found throughout Nevada, from low desert to high mountain habitats. Concentrated in areas offering caves or mines as roosting sites and preferring caves and mines where the temperature is 54°F (12°C.) or less but usually above freezing.	Year-round	Moderate. Initial field survey associated with meteorological tower ROW permitting did not result in the identification of any bats at dusk or dawn. However, habitat for this species exists within the ROW.

1/ Status:

FEDERAL

- E = Endangered
- T = Threatened
- C = Candidate for Federal listing as endangered or threatened
- SC = Species of concern

STATE

- P = Protected by Nevada state law
- Prop = Proposed for state-protected status

BLM (Bureau of Land Management)

- S = Special-status species in Nevada

**Table 5-2. Plant and Animal Species Observed During Initial Field Survey
Associated With Meteorological Tower ROW Permitting**

Scientific Name	Common Name
Plants	
<i>Ephedra viridis</i>	Green Ephedra
<i>Yucca schidigera</i>	Mojave Yucca
<i>Yucca brevifolia</i>	Joshua Tree
<i>Echinocactus polycephalus</i>	Cotton-Top
<i>Opuntia basilaris</i>	Beavertail Cactus
<i>Acacia greggii</i>	Catclaw
<i>Cucurbita palmate</i>	Coyote Melon
<i>Opuntia acanthocarpa</i>	Buckhorn Cholla
<i>Erodium cicutarium</i>	Storksbill
<i>Phoradendron californicum</i>	Desert Mistletoe
<i>Echinocereus engelmannii</i>	Hedge-Hog Cactus
<i>Larrea tridentate</i>	Creosote Bush
<i>Ambrosia dumosa</i>	Burrobush
<i>Hymenoclea salsola</i>	Cheesebush
<i>Coleogyne ramosissima</i>	Blackbush
<i>Encelia actoni</i>	Acton Encelia
<i>Tetradymia</i> sp.	Cotton-thorn
<i>Datura wrightii</i>	Jimson Weed
<i>Lycium</i> sp.	Box Thorn
<i>Palafoxia arida</i>	Desert Needles
<i>Erigonum inflatum</i>	Desert Trumpet
<i>Pleuraphis rigida</i>	Big Galleta
<i>Poa</i> sp.	Annual Grass
Amphibians / Reptiles	
None Seen	
Birds	
<i>Corvus corax</i>	Common Raven
<i>Buteo jamaicensis</i>	Red-tailed Hawk
<i>Sialia currucoides</i>	Mountain Bluebird
<i>Colaptes chrysoides</i>	Guildded Flicker
<i>Poliophtila melanura</i>	Black-tailed Gnatcatcher
<i>Auriparus flaviceps</i>	Verdin
<i>Amphispiza bilineata</i>	Black-throated Sparrow
Mammals	
<i>Ammospermophilus leucurus</i>	White-tailed Antelope Squirrel
<i>Neotoma lepida</i>	Woodrat (sign)
<i>Lepus californicus</i>	Black-tailed Jack Rabbit (sign/or visual)

5.2.3 Federally-Listed, Special Status and/or Sensitive Species

Federally-Listed Species

The USFWS has listed 16 species of plants and/or wildlife within Clark County, Nevada, as threatened or endangered (USFWS, 2005). Of these, only the desert tortoise (*Gopherus agassizii*) is likely to occur within the ROW.

Desert Tortoise (*Gopherus agassizii*)

The desert tortoise was listed by the USFWS as a threatened species under the federal Endangered Species Act (ESA) on April 2, 1990. In addition, as Nevada's state reptile, the desert tortoise is considered a state protected and state threatened species.

During the initial field survey associated with meteorological tower ROW permitting, one desert tortoise burrow was observed within the ROW, approximately 750 feet southwest of the proposed location for meteorological tower 2 (Section 25 in T28S R63E). The potential for desert tortoise to be encountered in the ROW is considered to be high due to the favorable topography, proximity of creosote desert scrub habitat, and proximity to USFWS-designated critical desert tortoise habitat within the Paiute-El Dorado Valley Area of Critical Environmental Concern (ACEC), which borders the proposed Searchlight Wind Energy Facility ROW.

Special-Status Animal Species

BLM's special-status animal species potentially occurring in the ROW are described below.

Banded Gila Monster (*Heloderma suspectum* ssp. *cinctum*)

The banded Gila monster is a Nevada state-protected and BLM sensitive species. The banded Gila monster is common in areas with Saguaro cactus and along washes at elevations from near sea level to 4,100 feet. It occurs in southwestern Utah, the southern tip of Nevada, southwestern New Mexico, Arizona, and in Sonora, Mexico primarily in the Mojave Desert scrub and salt desert scrub ecosystems. The banded Gila monster usually uses burrows excavated by other animals, but can dig its own burrow. They live in heavy brush, rocky brushy wash beds, and/or along canyon bottoms.

Chuckwalla (*Sauromalus ater*)

The chuckwalla is a state-protected and BLM special status species. The Chuckwalla inhabits open flats and rocky areas, often near large rocks and boulders.

Townsend's Western Big-eared Bat (*Corynorhinus townsendii*)

Townsend's western big-eared bat is a BLM sensitive species found throughout Nevada, from low desert to high mountain habitats. This species is often found in areas offering caves or mines as roosting sites. Historical mining operations in the Searchlight vicinity have created many open mining shafts for potential occupation, but few other habitat features such as open water are known to occur within the ROW. Therefore, the

Townsend's western big-eared bat is not expected to inhabit the ROW in significant numbers.

Desert Bighorn Sheep (*Ovis canadensis nelsoni*)

The desert bighorn sheep is a BLM special status species in Nevada. Desert bighorn sheep prefer dry, desert mountain ranges and foothills, near rocky cliffs, in xeric environments with minimal vegetation. In winter, desert bighorn sheep range farther from water sources to browse on vegetation in full leaf. In summer, desert bighorn sheep maintain closer proximity to water sources and cover such as caves or rocky overhangs. Habitat for this species is present in the ROW.

Le Conte's Thrasher (*Toxostoma lecontei*)

The Le Conte's thrasher is a BLM special status species and is a state-protected species in Nevada. The Le Conte's thrasher prefers arid, sparsely vegetated habitats, and generally nests in robust saltbushes. Scrub habitat with the potential to support this species is present in the ROW.

5.2.4 Vegetation

Plant Communities

The proposed Searchlight Wind Energy Facility ROW is characterized by flat to heavily dissected topography and by high desert plant communities. Surface disturbance ranges from minimal to heavy, with vegetation being rather sparse in disturbed areas. The ROW consists primarily of mixed scrub dominated by creosote bush, in loose associations with other shrub species (Figure 5-1). Joshua Tree Woodland, blackbush scrub, and yucca also are common within the ROW (Figure 5-2). See Table 5-2 for species observed during the initial field survey associated with meteorological tower ROW permitting.

Cacti & Yucca

Native cacti and yucca are protected and regulated by NRS 527.060-120 and Nevada Administrative Code (NAC) Chapter 527 when proposed for removal or possession at "commercial" rates or quantities. Such removal or possession requires a permit and tags from the Nevada Division of Forestry.

It is unlawful to cut, destroy, mutilate, remove, or possess any cacti or yucca from any of the lands owned by or under the jurisdiction of the state of Nevada or its counties, or on any reserved or unreserved lands owned by the United States, or from any privately owned lands, without written permission from the legal owner.

Yucca and cacti are found throughout the proposed Searchlight Wind Energy Facility ROW. Catamount will prepare a Construction Mitigation and Restoration Plan to manage the removal and/or transplantation of yucca or cacti per BLM guidelines and future permitting activities.



Figure 5-1. Typical Creosote Scrub Vegetation Community Common within the ROW



Figure 5-2. Joshua Trees and Yucca Found within the ROW

Noxious Weeds

Noxious weeds are defined by the State of Nevada as “Any species of plant which is, or liable to be, detrimental or destructive and difficult to control or eradicate...” (NRS 555.005). The noxious weed species of primary interest to the BLM Las Vegas Field Office are listed in Table 5-3.

Table 5-3. Nevada State Department of Agriculture Noxious Weed List

Common Name	Scientific Name
Category A Weeds	
African Rue	<i>Peganum harmala</i>
Austrian fieldcress	<i>Rorippa austriaca</i>
Austrian peaweed	<i>Sphaerophysa salsula / Swainsona salsula</i>
Camelthorn	<i>Alhagi camelorum</i>
Common crupina	<i>Crupina vulgaris</i>
Dalmation Toadflax	<i>Linaria dalmatica</i>
Dyer's woad	<i>Isatis tinctoria</i>
Eurasian water-milfoil	<i>Myriophyllum spicatum</i>
Giant Reed	<i>Arundo donax</i>
Giant Salvinia	<i>Salvinia molesta</i>
Goats rue	<i>Galega officinalis</i>
Houndstongue	<i>Cynoglossum officinale</i>
Hydrilla	<i>Hydrilla verticillata</i>
Iberian Star thistle	<i>Centaurea iberica</i>
Klamath weed	<i>Hypericum perforatum</i>
Leafy spurge	<i>Euphorbia esula</i>
Malta Star thistle	<i>Centaurea melitensis</i>
Mayweed chamomile	<i>Anthemis cotula</i>
Mediterranean sage	<i>Salvia aethiopis</i>
Purple loosestrife	<i>Lythrum salicaria, L.virgatum and their cultivars</i>
Purple Star thistle	<i>Centaurea calcitrapa</i>
Rush skeletonweed	<i>Chondrilla juncea</i>
Sow Thistle	<i>Sonchus arvensis</i>
Spotted Knapweed	<i>Centaurea masculosa</i>
Squarrose star thistle	<i>Centaurea virgata Lam. Var. squarrose</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Syrian Bean Caper	<i>Zygophyllum fabago</i>
Yellow Starthistle	<i>Centaurea solstitialis</i>
Yellow Toadflax	<i>Linaria vulgaris</i>
Category B Weeds	
Carolina Horse-nettle	<i>Solanum carolinense</i>
Diffuse Knapweed	<i>Centaurea diffusa</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Musk Thistle	<i>Carduus nutans</i>
Russian Knapweed	<i>Acroptilon repens</i>
Sahara Mustard	<i>Brassica tournefortii</i>
Scotch Thistle	<i>Onopordum acanthium</i>
White Horse-nettle	<i>Solanum elaeagnifolium</i>
Category C Weeds	
Black henbane	<i>Hyoscyamus niger</i>
Canada Thistle	<i>Cirsium arvense</i>
Green Fountain grass	<i>Pennisetum setaceum</i>
Hoary cress	<i>Cardaria draba</i>
Johnson grass	<i>Sorghum halepense</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
Poison Hemlock	<i>Conium maculatum</i>
Puncture vine	<i>Tribulus terrestris</i>
Salt cedar (tamarisk)	<i>Tamarix spp</i>
Water Hemlock	<i>Cicuta maculata</i>

No noxious weeds were identified during the initial field survey associated with meteorological tower ROW permitting. However, the potential for noxious weed seed

transport and establishment exists with all construction activities during which vehicles traverse lands free of noxious weeds after traversing other lands with the potential to maintain noxious weeds.

Southern Nevada rangelands are being impacted by the presence of invasive, non-native vegetation (weeds). The BLM's Las Vegas Field Office has prepared the Las Vegas Field Office Noxious Weed Plan [8] to provide guidance for an active integrated weed management program using best management practices. The practices originated from a cooperative effort between BLM and other Federal agencies which produced the document, Partners Against Weeds [9]. The BLM's Las Vegas Field Office Noxious Weed Plan will narrow that focus as it dovetails into the Partners Against Weeds action plan. Weeds are seen as a major threat to ecosystem health in southern Nevada. The presence of weeds in any landscape increases the inter-specific competition for resources. In most situations weeds out-compete native plants and displace them. As such, specific mitigation measures must be taken to minimize the inadvertent transportation of noxious weed seeds and the resultant establishment of noxious weeds.

The management of weeds is further guided by the Las Vegas Resource Management Plan which identifies two objectives for resource management involving weeds. 1) RP-1-f., which states; "Use integrated weed management techniques to control and eradicate tamarisk, such as burning, chemical, biological or mechanical treatments, where potential for treatment is good. Rehabilitate the area with native species to help reduce the potential for tamarisk re-establishment and improve ecosystem health." 2) VG1, which states; "Maintain or improve the condition of the vegetation on public lands to a Desired Plant Community or to a Potential Natural Community." The Las Vegas Field Office Noxious Weed Plan was approved on December 18, 2006.

Based on the Las Vegas Field Office Noxious Weed Plan, a project-specific Noxious Weed Plan will be established in future efforts and included with the Construction Mitigation and Restoration plan in the Environmental Compliance Plan for the proposed Searchlight Wind Energy Facility. The plan will include project specific stipulations that will attempt to control the establishment and spread of Nevada-listed noxious weeds that may result from construction and operation of the proposed facility.

5.2.5 Wildlife

The proposed ROW occurs in typical desert upland habitat that supports various small mammals, reptiles, invertebrates, and birds. Mojave Desert vegetation occurs throughout the ROW and supports a wide variety of animals. However, few wildlife species were observed during the initial field survey associated with meteorological tower ROW permitting. Other species that might be expected to occur in the ROW are summarized in Table 5-4.

Table 5-4. Wildlife Species Not Discussed Previously but with the Potential to Occur in the Searchlight Wind Energy Facility ROW

Scientific Name	Common Name
Mammals	
<i>Dipodomys spp.</i>	Kangaroo rat
<i>Sylvilagus audonboni</i>	Desert cottontail
<i>Amnospermophilus leucurus</i>	White-tailed antelope ground squirrel
Reptiles	
<i>Crotalus scutulatus</i>	Mojave-green rattlesnake
<i>Uta stansburiana</i>	Side-blotched lizard
Birds	
<i>Aquila chrysaetos</i>	Golden eagle
<i>Falco mexicanus</i>	Prairie falcon
<i>Accipiter striatus</i>	Sharp-shinned hawk
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Toxostoma crissale</i>	Crissal thrasher
<i>Spizella breweri</i>	Brewer's sparrow
<i>Amphispiza belli</i>	Sage sparrow
<i>Amphispiza bilineata</i>	Black-throated sparrow
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<i>Callipepla gambelii</i>	Gambel's quail
Invertebrates	
<i>Aphonopelma chalcodes</i>	Desert tarantula

Impacts to wildlife associated with the construction and operation of the proposed Searchlight Wind Energy Facility will be mitigated through cooperative efforts between Catamount, the BLM, and the construction and operations contractors. Future permitting efforts, including detailed studies of plant and wildlife species present or with the potential to occur within the ROW, will serve to inform best management practices and specific stipulations that will mitigate impacts.

5.3 ARCHAEOLOGICAL, CULTURAL & HISTORICAL RESOURCES

Cultural Resources and Native American Relations Concerns are the two critical elements of the human environment analyzed in this section. These resources and concerns are managed in compliance with NEPA and with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations (36 CFR 800, as amended in 1999). Section 106 requires federal agencies to consider the effects of their actions on historic properties, that is, those properties listed in or eligible for nomination to the National Register of Historic Places (NRHP). In addition, the Advisory Council on Historic Preservation must be provided with a reasonable opportunity to comment on such undertakings. To determine whether an undertaking could affect historic properties, it is standard practice to conduct a cultural resource inventory and evaluate identified resources against criteria for the NRHP. Although compliance with Section 106 is the responsibility of the lead federal agency, others can be authorized to assist the agency.

According to Section 106 of NHPA, “an undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the National Register” (36 CFR 800.9[a]). An effect is considered adverse when the effect on an NRHP-eligible property may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to, the following.

- Physical destruction or alteration of all or part of the property;
- Isolation of the property from or alteration of, the property’s setting when that character contributes to the property’s qualifications for listing in the NRHP;
- Introduction of visible, audible, or atmospheric elements that are out of character with the property or that alter its setting;
- Neglect of a property, resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property (36 CFR 800.9).

Catamount will assist the BLM in evaluating potential impacts to cultural resources associated with the proposed Searchlight Wind Energy Facility. The area of potential effect (APE) for the project will include all surface disturbances within the ROW, as well as potential visual impacts to cultural resources to a distance to be determined through coordination with the BLM archaeologist for the Las Vegas Field Office. Impacts to cultural resources will be evaluated through archival research and an archaeological field investigation..

5.3.1 Literature and Records Search

Records research will be preformed by a qualified cultural resources contractor at the Southern Nevada Archaeological Archive at the Harry Reid Center for Environmental Studies at the University of Nevada, Las Vegas. Additionally, in-house record search will be conducted to review all cultural resources reports and recorded archaeological sites within a 1-mile radius of the APE to be established for the Searchlight Wind Energy Facility, or to an alternate distance determined through coordination with the BLM.

In addition to the review of available survey reports and site records, the search will also include a review of the National Register of Historic Places, the Nevada State Historic Register of Historic Places, Historical Resources of Clark County, and historic maps (e.g. historic quadrangle maps, 1884-1885 Plat Maps, 1905 Denny’s Map of Searchlight Area, 1905 Denny’s Prospector Map, and 1931 Geological Map of the Main Part of the Searchlight District, Clark County Nevada). Finally, a review of the Nevada Cultural Resources Information System (NVCRIS), an electronic database of the Nevada State Museum and Nevada State Historic Preservation Office, will be conducted. Additional resources with the potential to illuminate potential impacts to cultural resources will also be reviewed at the request of BLM or other stakeholders.

5.3.2 Archaeological Surveys

A qualified cultural resources contractor will be retained to conduct a Class III Cultural Resource Inventory (BLM Cultural Resources Inventory General Guidelines 1990) of the

APE to be established for the Searchlight Wind Energy Facility. The survey will serve to identify cultural resources within the project's APE via a pedestrian survey.

Archaeological resources encountered during the survey will be recorded on the state approved Intermountain Antiquities Computer System (IMACS) site form. Site boundaries, features, artifact concentrations, and disturbances will be recorded with a GPS capable of sub-meter accuracy and with sketched notes. Each site, its features, and the surrounding area will be photographed with a digital camera. Findings will be detailed in a BLM Cultural Resources Report.

5.3.3 Traditional Cultural Properties

Another cultural resource issue worthy of consideration is the possibility of Traditional Cultural Properties (TCP) within or near the proposed Searchlight Wind Energy Facility ROW. A TCP can generally be defined as a property that is eligible for inclusion on the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that are important in maintaining the continuing cultural identity of the community. TCPs are afforded the same protection under the law as significant archaeological sites.

TCPs are often hard to recognize and may not come to light through the conduct of archeological or historical surveys. The existence and significance of such locations often can be ascertained only through land use research, interviews, and consultation with traditional cultural practitioners. The literature and records search may reveal TCPs located within or near to the ROW, but additional identification efforts may be necessary upon comments gathered during consultation with the SHPO and Native American Tribes.

5.3.4 Native American Consultation

Pursuant to NEPA, NHPA, or state requirements, Native American Consultation shall be initiated early in the decision making process. BLM will conduct government-to-government Native American consultation.

5.4 VISUAL QUALITY

Visual sensitivity is dependent on viewer attitudes, the types of activities in which people are engaged when viewing the site, and the distance from which the site would be seen. Overall, higher degrees of visual sensitivity are correlated with areas where people live, are engaged in recreational outdoor pursuits, or participate in scenic or pleasure driving. Conversely, visual sensitivity is considered low to moderate in industrial or commercial areas where the scenic quality of the environment does not affect the value of the activity.

In order to meet its responsibility to maintain the scenic values of the public lands, BLM has developed a Visual Resource Management (VRM) system. The VRM inventory stage involves identifying the visual resources of an area and assigning them to inventory classes using BLM's visual resource inventory process. The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The process is described in detail in BLM Handbook H-8410-1, Visual Resource

Inventory [10]. Visual resources are then assigned to management classes with established objectives:

- Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- Class IV Objective: 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.

The VRM analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments would meet the management objectives established for the area, or whether design adjustments would be required. A visual contrast rating process is used for this analysis, which involves comparing the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. This process is described in BLM Handbook H-8431-1, Visual Resource Contrast Rating (BLM 1986), which includes the Visual Contrast Rating Worksheet (Form 8400-4).

The Las Vegas Field Office's RMP (BLM 1998) has designated lands in the ROW primarily as VRM Class III (VS-1-b), but also as Class II (VS-1-a). In Class III areas, "authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer". In Class II areas, BLM manages the land to "retain the landscape's existing character. In these areas, authorized actions may not modify existing landscapes or attract the attention of casual viewers" [5]. These designations were based on the area's visual sensitivity and are a 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 [11].

The proposed Searchlight Wind Energy Facility ROW lies within a classic basin and range landscape which includes large areas of relatively flat land with scattered mountain ranges defining and containing the visual spaces (Figure 5-3). The overall appearance of the landscape is vast and barren, with gray-green, low-growing creosote bush scrub as the predominant vegetation. This low growing vegetation would not provide any vegetative screening for large structures, such as the proposed wind turbines. Turbines are planned for flat terrain with mountains as a backdrop, where there would be less visual contrast and higher visual absorption capability. Turbines are also planned for skyline ridges and hilltops, where there would be higher visual contrast and lower visual absorption capability. The existing landscape has been modified through past and current human habitation, highway and roadway development, mining activities, the establishment of transmission line corridors, and other anthropogenic activities (Figure 5-4).



Figure 5-3. Topography and Visual Character of the ROW



Figure 5-4. Existing Modifications to the Visual Character of the ROW from Highway 95

Figure 5-5 presents a zone of visual impact (ZVI) map of the potential line of sight visibility of the proposed turbines within approximately 15 miles of the proposed Searchlight Wind Energy Facility ROW. In the ZVI map, the background color gradient from black to white indicates the number of turbines that may be visible from the ground location represented by each pixel. It should be noted that the ZVI map presents a conservative assessment of project visibility, as minor topographic variations may not be captured by the digital elevation model from which the ZVI model is derived. Additionally, the ZVI model indicates visibility across a vast landscape, much of which is not regularly accessed. That is, the ZVI model shows where turbines would likely be visible, not necessarily where they would be regularly seen by the casual observer. Additionally, the ZVI model does not account for the degradation of turbine visibility that occurs with increasing distance due to scaling, atmospheric effects, and the expansion of a viewer's visual context.

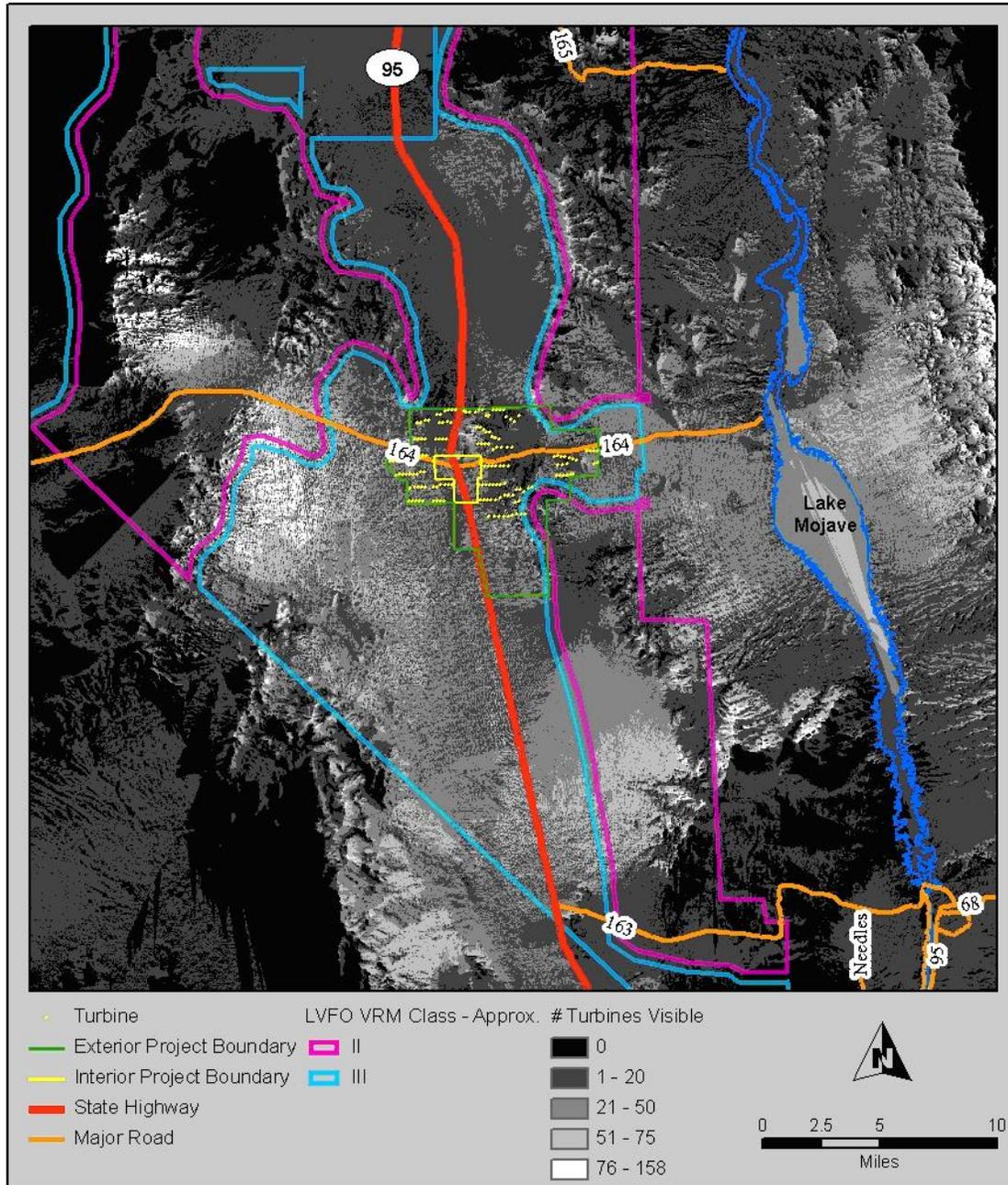


Figure 5-5. Modeled Turbine Visibility within Approximately 15 Miles of the Proposed Searchlight Wind Energy Facility

Based on the ZVI map in Figure 5-5, and on an initial visual resources assessment field visit to the ROW in August 2007, key viewsheds in the vicinity of the proposed Searchlight Wind Energy Facility are understood to include the areas seen from the Town of Searchlight (including the Harry Reid Elementary School and other community resources), US Highway 95, State Highway 164, and Lake Mohave, which is a part of the Lake Mead National Recreation Area. Highway 164 leads to Cottonwood Cove (marina and boat ramp), and because of topographic screening, no turbines are expected to be

visible from Cottonwood Cove. Turbines may also be visible from the water surface of Lake Mohave.

To assess the impact on these and other key viewsheds in particular, and on visual resources in general, Catamount will engage a qualified visual resources specialist to complete Visual Contrast Rating Worksheets, detailed visibility modeling, and visual simulations from key viewsheds that will elucidate the following:

- Potential for substantial impacts to scenic resources, such as trees, rock outcroppings, or historic resources along major travel corridors;
- Potential for substantial degradation of the existing visual character or quality of the site and its surroundings; and
- Potential for creation of a new source of light or glare that affects day or nighttime views in an area.

Based on the determination of potential project impacts to visual resources, Catamount will modify the proposed turbine alignment to the extent feasible in order to mitigate impacts to visual resources.

5.5 NOISE

The project will comply with all Federal, State and Clark County requirements with respect to noise levels during construction and operation. Through future environmental review and permitting processes, a site specific plan for avoiding and/or mitigating noise impacts will be created. Project-specific avoidance and mitigation measures will be incorporated into the final design, EIS, and Environmental Compliance Plan.

At this time, the nearest permanent residences to the proposed turbine locations are understood to be located in the Town of Searchlight. Additional structures including potentially permanent residences, outbuildings, and mining infrastructure are situated on private inholdings and mineral claims within the ROW. Catamount is investigating these structures to determine their use and permanency of residence.

During the construction period, which is expected to last up to twelve months, short-term noise associated with the project will include that generated by on-site construction activities and by the transportation of workers and equipment. Noise can be expected to be temporarily increased within the project ROW and along the roads to and from the ROW.

With respect to noise from construction traffic, the project will generate a *peak* of approximately 350 one way trips per day on U.S. Highway 95 and State Highway 164 (based on 75 construction personnel leaving and entering the project site and 100 delivery trucks leaving and entering). With respect to noise levels from construction, the highest noise typically occurs with earth moving equipment (bulldozers, excavators, backhoes, etc.) and road building equipment (compactors, scrapers, graders, etc.). Typical operating cycles may involve one or two minutes at full power operation followed by three or four minutes at lower power settings.

If required, blasting may be an additional source of noise for this project during construction. Blasting will be limited to the hours of 8 am to 5 pm and nearby residences will be notified in advance. The amount of blasting, if any, is unknown at this time.

Federal codes, primarily the Occupational Safety and Health Act of 1970 (OSHA) regulate worker exposure noise levels and would apply during construction and maintenance of the project. These codes limit worker exposure to noise levels of 85 dB or lower over an 8-hour period. In addition, State of Nevada regulations (NRS 244.363) provide for the prevention of excessive noise at the county level. The project will comply with Clark County Development Code 30.68.020, which regulates noise by zoning, time of day, frequency, and decibel level. Limitations on noise do not apply to daytime construction activities.

During commercial operation the wind turbines will generate sound (swooshing as the blades pass through the air). The level of this sound diminishes with distance. For a typical configuration the sound would be barely audible at a distance of 1,500 feet under most atmospheric conditions.

5.6 AIR QUALITY

During construction, local increased particulates will result due to increased airborne dust. Speed limits of 20 mph will be posted and enforced on the site to limit the amount of airborne dust which would result from vehicles. Through future environmental review and permitting processes, a site specific plan for avoiding and/or mitigating airborne dust impacts will be created. Project-specific avoidance and mitigation measures will be incorporated into the final design, EIS, and Environmental Compliance Plan.

Site roads shall be brushed or scraped as required to minimize dust and mud deposits, especially at site entrances and any watercourse crossings. If necessary, dust suppression may be achieved by spraying water onto the site roads to reduce the airborne dust particulates.

After completion, the turbine project will generate electricity without air pollution and is expected to result in the overall reduction of an estimated 575,000 tons of Carbon Dioxide, 900 tons of Nitrogen Oxide, and 600 tons of Sulfur Dioxide per year compared with electricity generated by the average fuel mix for the region in which the project is to be located [3].