3.1 Introduction to Chapter 3

Chapter 3 describes the environmental components in the project area that could be affected by implementation of the Alta East Wind Project (AEWP), including existing resources, resource uses, special designations, and other important topics (i.e., public health and safety, social and economic considerations, and environmental justice conditions). "Resources" include air, climate change, soil, water, vegetative communities, wild horses and burros, wildlife and plant species, wildland fire ecology and management, as well as cultural, paleontological, and visual resources. "Resource uses" include livestock grazing management, minerals, recreation management, transportation and public access, and lands and realty. "Special designations" include areas of critical environmental concern (ACECs), wilderness areas (WAs), and wilderness study areas (WSAs).

Information and data used to prepare the sections of this chapter were obtained from California Desert Conservation Area (CDCA) Plan, various BLM documents, NEPA documents, CEQA documents, Kern County documents, and other documents as specified in each section. Information and data were also collected from many other related planning documents and research publications prepared by various federal, State and local agencies, as well as from private sources pertaining to key resource conditions and resource uses found within the project area. The purpose of this chapter is to provide a description of affected resources and the BLM program areas within the existing environment of the project area, which will be used as a baseline to evaluate and assess the impact of the alternatives described in Chapter 2.

Each section of Chapter 3 utilizes the following basic format:

- **Introduction**. Includes an overview of the content to be discussed in section.
- **Environmental Setting**. Provides project-specific context for the analysis.
- **Applicable Regulations, Plans and Standards**. Describes the applicable regulations for the subject.

Analyses of the impacts for each subject are presented in Chapter 4, Environmental Consequences.

3.2 Air Resources

3.2.1 Environmental Setting

The Alta East Wind Project (AEWP) is located entirely in the Mojave Desert Air Basin (MDAB), which encompasses over 20,000 square miles of California's desert. The MDAB consists of the eastern half of Kern County, the northern desert portion of Los Angeles County, most of San Bernardino County, and eastern Riverside County. The eastern portion of Kern County where the AEWP is located is regulated by the Eastern Kern Air Pollution Control District (EKAPCD). The environmental setting and regulatory information provided in this section was obtained from federal, state and local air quality agency websites and other publically available resources as cited below.

3.2.1.1 Meteorological Conditions

Away from the cooling effects of the Pacific Ocean, the climate of eastern Kern County can be characterized as hot in summer and cold in winter, compared with the coastal basins where the climate is moderated by the adjacent ocean. According to the Weather Channel (WC, 2011), average temperatures recently recorded in Mojave, located 4 to 5 miles to the south-southeast of the AEWP site, range from a low of 33 degrees Fahrenheit (°F) in December to highs of 97º F in July. Rainfall averages 6.6 inches a year in Mojave. Much of the Mojave Desert Air Basin (MDAB), including the AEWP site area within eastern Kern County, is sparsely populated with minimal generation of man-made pollutants, although significant quantities of natural fugitive dust emissions can occur during windy conditions.

The Tehachapi and Sierra Nevada Mountains provide a natural barrier to the north, preventing cold air masses from Canada and Alaska from moving down into the Basin. Prevailing winds in the basin blow from the west and southwest, caused by air masses pushed onshore in Southern California. During the summer months, the basin is influenced by the Eastern Pacific High-Pressure Area, inhibiting cloud formation and encouraging daytime solar heating. The San Gabriel and San Bernardino mountain ranges block the majority of the cool moist coastal air from the south and the AEWP area is in the rain shadow of several surrounding mountain ranges that cover the normal range of wet winter weather front directions, so the area experiences infrequent rainfall.

The AEWP site area, as would be expected for a wind energy project site, is characterized by strong winds from a very predominant direction, in this case from the west through the west-northwest. Winds from this direction arc occur 59.3 percent of the time and an average hourly wind speed of over eight miles per hour (mph) from this wind direction arc occurs over 54 percent of the time (WRCC, 2011).

3.2.1.2 Existing Air Quality

The United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and the local air districts classify an area as attainment, unclassified, or nonattainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The National and California Ambient Air Quality Standards (NAAQS and CAAQS) relevant to the AEWP are provided in Table 3.2-1.

Most of the MDAB is sparsely populated and, as a result, there is less industrial growth and fewer automobiles to generate pollution than other areas in California. Air pollution that occurs within the MDAB is largely the result of regional pollutants transported by wind from the San Joaquin Valley and South Coast Air Basins. Pollutants from these areas are transported in the atmosphere and can impact areas far removed from the source. Table 3.2-2 summarizes the federal and State attainment status of criteria pollutants for the EKAPCD based on the NAAQS and CAAQS, respectively.

Table 3.2-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	Health Effects
Ozone (O_3)	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.075 ppm	Breathing difficulties, lung tissue damage
Respirable particulate matter (PM10)	24-hour Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 —	Increased respiratory disease, lung damage, cancer, premature death
Fine particulate matter (PM2.5)	24-hour Annual	— 12 µg/m^3	35 µg/m^3 15 µg/m^3	Increased respiratory disease, lung damage, cancer, premature death
Carbon monoxide (CO)	1-hour 8-hour	20 µg/m^3 9.0 ppm	35 ppm 9.0 ppm	Chest pain in heart patients, headaches, reduced mental alertness
Nitrogen dioxide (NO_2)	1-hour Annual	0.18 ppm 0.030 ppm	0.100 ppm* 0.053 ppm	Lung irritation and damage
Sulfur dioxide (SO_2)	1-hour 3-hour 24-hour Annual	0.25 ppm — 0.04 ppm —	0.075 ppm* 0.5 ppm 0.14 ppm 0.03 ppm	Increases lung disease and breathing problems and asthmatics

Source: CARB, 2011a.
ppm=parts per million; µg/m3= micrograms per cubic meter; "—" = no standard
Note:
*The new federal 1-hour NO2 and SO2 standards are based on the 98th and 99th percentile of daily hourly maximum values, respectively.

Table 3.2-2. Attainment Status for the EKAPCD

Pollutant	Federal	State
Ozone	Former Subpart 1 Nonattainment	Moderate Nonattainment
PM10	Attainment	Nonattainment
PM2.5	Unclassified/Attainment	Unclassified
CO	Unclassified/Attainment	Unclassified
NO_2	Unclassified	Attainment
SO_2	Unclassified	Attainment

Source: CARB, 2011b; USEPA, 2011a.

The air basin area containing the AEWP has not yet been classified for the new federal 1-hour NO_2 and SO_2 standards; however, a review of the available data suggests that the area will be classified as attainment or unclassified.

3.2.1.3 Criteria Air Pollutants

The following is a general description of the criteria air pollutants that would be emitted by the AEWP construction and operation and a summary of the monitored concentrations for each pollutant at sites near the AEWP site. The MDAB has 13 monitoring stations to measure air quality. The most representative monitoring stations are Mojave 923 Poole Street monitoring station and Lancaster 43301 Division Street monitoring stations, which are located 5 miles south-southeast and 31 miles south of the AEWP site, respectively. These two monitoring stations are used to represent the background air quality conditions

for the AEWP site. Table 3.2-3 provides a summary of the last three years (2008-2010) of most representative available ambient monitoring data.

Table 3.2-3. Background Ambient Air Quality Data

CARB Air Monitoring Station	Number of Days Exceeding NAAQS			Number of Days Exceeding CAAQS			Maximum Concentration (ppm or µg/m^3)[a]		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
1-Hour Ozone									
Mojave	0	0	0	15	3	0	0.104*	0.101	0.092
8-Hour Ozone									
Mojave	41	32	3	60	61	21	0.094	0.084	0.083
8-Hour CO									
Lancaster	0	0	0	0	0	0	1.04	1.0	1.23
1-Hour NO_2 – State									
Lancaster	—	—	—	0	0	0	0.062	0.065	0.056
1-Hour NO_2 – Federal									
Lancaster	0	0	0	—	—	—	0.054	ND	ND
Annual NO_2									
Lancaster	—	—	—	—	—	—	0.013	ND	0.012
24-Hour PM10 – Federal									
Mojave	0	0	0	—	—	—	154.0[b]	68.0	52.8
24-Hour PM10 – State									
Mojave	—	—	—	13+	6+	0	144.8[b]	67.0	49.0
Annual PM10 – State									
Mojave	—	—	—	—	—	—	22.3	ND	ND
24-Hour PM2.5 – Federal									
Mojave	0	0	0	—	—	—	19.1	12.7	10.0
Annual PM2.5 – Federal									
Mojave	—	—	—	—	—	—	6.8	5.1	ND
Annual PM2.5 – State									
Mojave	—	—	—	—	—	—	ND	5.2	ND

Source: CARB, 2011c; USEPA, 2011b
ND = No Reported Data; "—" = Not Applicable; ppm = parts per million; µg/m^3 = microgram per cubic meter
* excludes exceptional events
+ Measurements are usually collected every six days. Estimated days are calculated by using the measured days frequency.
Notes:
a Gaseous pollutant (ozone, NO_2, and CO) concentrations are shown in ppm and particulate (PM10 and PM2.5) concentrations are shown in µg/m^3.
b These data may represent exceptional natural events (high wind or fire.)

Ozone (O_3)

In the presence of ultraviolet radiation, both Nitrogen Oxide (NOx) and Volatile Organic Compounds (VOCs) go through a number of complex chemical reactions to form ozone. Table 3.2-3 summarizes the ambient ozone data collected over the past three years from the Mojave and Lancaster monitoring stations. Table 3.2-3 includes the maximum hourly concentration and the number of days above the federal and State standards. As shown in Table 3.2-3, ozone continues to be above the State 1-hour and both the federal and State 8-hour ozone standards.

Carbon Monoxide (CO)

CO is a byproduct of motor vehicle exhaust, which contributes more than two-thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95% of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

Table 3.2-3 summarizes the CO data collected over the past three years from the Lancaster monitoring stations located near the AEWP site.

Nitrogen Dioxide (NO_2) and Nitrogen Oxides (NOx)

Nitrogen dioxide is a reddish brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide. NOx, the generic term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts, plays a major role in the formation of ozone, particulate matter (PM), and acid rain. NOx emissions result from high-temperature combustion processes such as vehicle exhaust emissions and power plants. Home heaters and gas stoves can also produce substantial amounts of NO_2 in indoor settings. The majority of the NOx emitted from combustion sources is in the form of NO, while the balance is mainly NO_2. NO is oxidized by O_3 in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion.

Table 3.2-3 summarizes the ambient nitrogen dioxide data collected over the past three years from the Lancaster monitoring station. Table 3.2-3 includes the maximum 1-hour and annual concentrations. As indicated in the table, there have been no exceedances of the federal and State standards. The EKAPCD is in attainment for nitrogen dioxide.

Particulate Matter (PM)

PM pollution consists of very small aerosol and solid particles floating in the air. PM is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Some PM, such as pollen, is naturally occurring. PM also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. The USEPA currently regulates two sizes of PM emissions, PM10 and PM2.5. PM10 refers to particles less than or equal to 10 microns in diameter and PM2.5 refers to particles less than or equal to 2.5 microns in diameter.

<u>Respirable Particulate Matter (PM10)</u>. PM10 can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NOx, sulfur oxides (SOx), VOC, and ammonia, given the right meteorological conditions, can form PM in the form of nitrates (NO_3), sulfates (SO_4), and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted, but are formed through complex chemical reactions in the atmosphere.

Table 3.2-3 summarizes the ambient PM10 data collected from the Mojave and Lancaster monitoring stations. The table provides both the maximum 24-hour and the annual arithmetic average concentrations and the number of days above the federal and State standards. Eastern Kern County is designated attainment for the federal PM10 standard, but nonattainment for the State PM10 standard.

<u>Fine Particulate Matter (PM2.5)</u>. Fine particulate matter, or PM2.5, is derived mainly from either the combustion of materials, or from precursor gases (SOx, NOx, and VOC) through complex reactions in the atmosphere. PM2.5 consists mostly of sulfates, nitrates, ammonium, elemental carbon, and a small portion of other organic and inorganic compounds.

Table 3.2-3 summarizes the ambient fine PM data collected from the Mojave and Lancaster monitoring stations. As shown in Table 3.2-3, the monitored PM2.5 concentration levels have exceeded neither the

NAAQS nor the CAAQS. The EKAPCD is designated attainment for both the federal and the state PM2.5 standards.

Sulfur Dioxide (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast, fuels high in sulfur content such as coal or heavy fuel oils can emit very large amounts of SO_2 when combusted. Sources of SO_2 emissions come from every economic sector and include a wide variety of fuels, gaseous, liquid and solid.

As shown in Table 3.2-2, the EKAPCD is designated as attainment or unclassified for all SO_2 State and federal ambient air quality standards. Due to fuel sulfur the restrictions, reduction in gasoline and diesel sulfur contents and reduction in SO_2 emissions from other industrial sources, such as refineries, SO_2 pollution is no longer a major air quality concern in most of California including the Proposed Action area. Historical background SO_2 concentrations are omitted in the Table 3.2-3 since there are no representative SO_2 monitoring stations, and because there is no potential that the SO_2 emissions of the AEWP combined with the background concentration could exceed the CAAQS or NAAQS.

Summary

As discussed above and presented in Table 3.2-2, the AEWP area as regulated by the EKAPCD, is in nonattainment for the State and the federal ozone standards, and the State PM10 standard. The air basin area containing the AEWP and EKAPCD is designated as attainment or unclassified for the CO, NO_2, SO_2, and PM2.5 federal and State standards and attainment for the federal PM10 standard.

3.2.1.4 Toxic Air Pollutants and Valley Fever

Toxic Air Pollutants

There are no ambient air quality standards or available ambient air quality data for most toxic air pollutants. Ambient concentrations and the associated health risk from toxic air pollutants are a function of the major industry emissions and the population of an affected area. The MDAB in general, and Eastern Kern County in particular, have low population and industry emissions of toxic air pollutants; so, the existing ambient health risk from toxic air pollutants would be low in comparison with more populated less rural areas of California. Additionally, the emissions of toxic air pollutants (aka air toxics) are very limited for this type of project, and from a health risk perspective would be primarily concerned with the emissions of diesel particulate matter (DPM).

Valley Fever

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus Coccidioides immitis (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte (an organism, especially a fungus or bacterium, which grows on and derives its nourishment from dead or decaying organic matter) in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever.

3.2.1.5 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

The nearest sensitive receptors for the AEWP include residences located adjacent to the northern AEWP site boundary and southeast of the southern site boundary. Several of these residences are within a 1-mile radius of the AEWP site boundary, and the closest residential properties are located adjacent to the site boundary. A WTG site is located less than 700 feet from the nearest residential property. There are several schools located within six miles of the site, including; the Mojave Elementary School, Joshua Middle School, Mojave Senior High school, Mountain View High School, and Douglas High School. These schools range from 3.5 to 4.7 miles from the AEWP site. Two medical clinics, the Mojave Medical Center and the Tehachapi Family Health Center are located 3.4 miles and 4.3 miles southeast of the site, respectively; but no full service hospitals are located within six miles of the AEWP site. Additionally, the Cameron Ridge segment of the Pacific Crest Trail (PCT) passes northwest of the AEWP area, north of SR 58. The new transmission line that would be constructed as part of the AEWP would generally be located further away from residential receptors than the AEWP site itself, and the air quality impacts from transmission line construction would be lower in intensity and completed in a much shorter timeframe at any given location than for the AEWP site construction.

3.2.2 Applicable Regulations, Plans, and Standards

3.2.2.1 Federal

The EKAPCD is responsible for issuing federal New Source Review (NSR) permits and has been delegated enforcement of the New Source Performance Standards. The federal NSR program requires air quality construction and operating permits for stationary sources when they exceed specific emissions thresholds for nonattainment pollutants, NSR air quality permits, and for attainment pollutants, Prevention of Significant Deterioration (PSD) air quality permits. The NSPS are emission control/ performance standards for specific types of stationary sources, such as boilers, cement kilns, gas turbines, etc. However, the AEWP does not include stationary sources of air pollution that would have emissions high enough to trigger federal air quality permitting, or that would be subject to any of the NSPS.

The proposed AEWP is located in a federal nonattainment area and requires the approval of a federal agency (BLM). Therefore, the AEWP is subject to the general conformity regulations (40 CFR Part 93). The air basin area containing the AEWP is classified as Former Subpart 1 nonattainment of the federal ozone ambient air quality standard. The general conformity emissions applicability threshold for this nonattainment classification is 100 tons/year of ozone precursor emissions (NOx and VOCs).

The USEPA has set emission standards for non-road diesel engines, including those used on construction cranes. These standards are published in the U.S. Code of Federal Regulations, Title 40, Part 89 [40 CFR Part 89].

Additionally, the AEWP must comply with the BLM's California Desert Conservation Area (CDCA) Plan. The CDCA Plan does not have any specific air quality emission reduction measure requirements but does require that these "…areas will be managed to protect their air quality and visibility in accordance with Class II objectives of Part C of the Clean Air Act Amendments unless otherwise designated another class by the State of California as a result of recommendations developed by any BLM air-quality management plan."

3.2.2.2 State

As discussed above in Section 3.2.1.2, the CARB has established CAAQS for many of the same pollutants covered under the federal NAAQS that are more stringent than the NAAQS. Pollutants regulated under these standards include O_3, NO_2, CO, PM10, PM2.5, SO_2, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Additional information regarding the CAAQS that are relevant to the AEWP is provided Section 3.2.1.2.

The CARB also has on-road and off-road engine emission reduction programs that indirectly affect the AEWP's emissions through the phasing in of cleaner on-road and off-road equipment engines. Additionally, the CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a statewide portable program to operate their equipment, which must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts.

The State has also enacted a regulation for the reduction of diesel particulate matter (DPM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for PM and NOx emissions from owners of fleets of diesel-fueled off-road vehicles and applies to equipment fleets of three specific sizes and the target emission rates are reduced over time (CARB, 2007).

3.2.2.3 Local

Eastern Kern Air Pollution Control District Rules and Regulations

The EKAPCD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, the EKAPCD implements air quality programs required by State and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The EKAPCD is also responsible for managing and permitting existing, new, and modified sources of air emissions within the Mojave Desert portion of Kern County and also established the following rules and regulations to ensure compliance with local, State, and federal air quality regulations:

- Rule 201. Rule 201 establishes permitting requirements for stationary sources. For the AEWP two identified emergency engines will require air quality permitting. However, it is also likely that the temporary concrete batch plant that will operate during construction will require permits from the EKAPCD. It is assumed that these permits will be the responsibility of the construction contractor.
- Rule 210.1. Rule 210.1 establishes stationary source offset levels for new and modified stationary sources of air pollutants. Under this rule, the EKAPCD has established required offsets for when the emissions from a source exceed the following trigger levels:
  - PM10 - 15 tons/year
  - Sulfur oxides (as SO_2) - 27 tons/year

- VOCs - 25 tons/year
- NOx (as NO_2) - 25 tons/year

The AEWP would have stationary source emissions that are well below the offset trigger levels of this rule.

- Rule 401. Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:
  a. As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines, or
  b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A [of the Rules].
- Rule 402. Rule 402 of the EKAPCD's rules and regulations addresses significant man-made dust sources from large operations. A large operation is defined as "any active operation, including vehicle movement on unpaved roadways, on property involving in excess of 100 contiguous acres of disturbed surface area, or any earth-moving activity exceeding a daily volume of 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period." Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion, and includes the following requirements:
  - A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source, excluding unpaved roadways.
  - A person shall utilize one or more Reasonably Available Control Measures to minimize fugitive dust emissions from each source type that is part of any active operation, including unpaved roadways.
  - A person shall not cause or allow downwind PM10 ambient concentrations to increase more than 50 micrograms per cubic meter above downwind concentrations as determined by simultaneous upwind and downwind sampling utilizing high-volume particulate matter samplers, or other EPA-approved equivalent method(s).
  - No person shall conduct a large operation without either: (1) conducting on-site PM10 air quality monitoring and associated recordkeeping; or (2) filing for and obtaining an approved fugitive dust emission control plan.
- Rule 404.1. Rule 404.1 applies to any person who discharge particulate matter emissions into the atmosphere from any single source operation and states:
  - Particulate matter emissions shall not exceed 0.1 grain per standard cubic foot of gas at standard conditions (gr/scf).
- Rule 419. Rule 419 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

Kern County General Plans (KCGP) – Air Quality Element

The policies, goals, and implementation measures in the KCGP applicable to air quality as related to the AEWP are provided below. The KCGP contains additional policies, goals, and implementation measures

that are more general in nature and not specific to development such as the AEWP. Therefore, they are not listed below.

Policies

- Policy 18. The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations.
- Policy 19. In considering discretionary projects for which an EIR must be prepared pursuant to the California Environmental Quality Act (CEQA), the appropriate decision-making body, as part of its deliberations, will ensure that:
  - All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and
  - The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the CEQA.
- Policy 20. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the EKACPD on ministerial permits.
- Policy 21. The County shall support air districts' efforts to reduce PM10 and PM2.5 emissions.
- Policy 23. The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

Implementation Measures

- Implementation Measure F. All discretionary permits shall be referred to the appropriate air district for review and comment.
- Implementation Measure G. Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:
  a. Minimizing idling time.
  b. Electrical overnight plug-ins.
- Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects:
  a. Pave dirt roads within the development.
  b. Pave outside storage areas.
  c. Provide additional low VOC-producing trees on landscape plans.
  d. Use of alternative fuel fleet vehicles or hybrid vehicles.
  e. Use of emission control devices on diesel equipment.
  g. Provide bicycle lockers and shower facilities on site.
  h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
  i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local air pollution control districts.

- Implementation Measure J. The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Specific and Community Plans

Though the AEWP boundaries are predominately located within the jurisdiction of the KCGP, portions of the AEWP boundary are within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. Specifically, the AEWP's transmission line falls within the boundaries of the Mojave Specific Plan. This plan includes several specific air quality policies and implementation measures, all but one of which are included in the Kern County General Plan. Implementation measure N 6 c) requires construction speed limits to be posted at 15 miles per hour and that road surfaces be prepared in a phased manner to reduce vehicle related dust emissions. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to air resources.

Kern County Zoning Ordinance

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to air quality issues related to the AEWP:

- Section 19.64.140(H): All wind projects including wind generators and towers shall comply with all applicable County, State, and federal laws, ordinances, or regulations.

3.3 Climate Change and Greenhouse Gases

3.3.1 Environmental Setting

Greenhouse Gases (GHGs) and climate change are a globally cumulative issue. The California Air Resource Board (CARB) and United States Environmental Protection Act (USEPA) regulate GHG emissions within the State of California and the United States, respectively. While the CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction.

The environmental setting and regulatory information provided in this section was obtained from Federal, State and local air quality agency websites and other publically available resources as cited below.

3.3.1.1 Climate Change

In the early 1960's scientists recognized that carbon dioxide levels in the atmosphere were rising every year. It was also noted that several other gases, including methane and nitrous oxides were also increasing. Levels of these gases have increased by about 25% since large-scale industrialization began around 150 years ago, according to the USEPA. After numerous computer-simulated model runs on the effects of these increases in the atmosphere, it was concluded that the rising concentrations almost always resulted in an increase of average global temperature. Rising temperatures may, in turn, produce changes in weather, sea levels and land use patterns, commonly referred to as "climate change" (EIA, 2010). The general scientific consensus is that climate change is occurring and that human activity contributes in some measure to that change. Man-made emissions of GHGs, if not sufficiently curtailed, could contribute to increases in global temperatures.

3.3.1.2 Greenhouse Gases

Many chemical compounds found in the Earth's atmosphere are GHGs. When sunlight strikes the Earth's surface, some light reflects back to space as infrared radiation (heat). GHGs, however, absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to the Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of the Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some naturally occurring GHGs include: water (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O); while others are exclusively man-made. The principal GHGs that enter and accumulate in the atmosphere as the result of human activity are listed below.

- **Carbon Dioxide (CO_2).** CO_2 enters the atmosphere through combustion of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, chemical reactions (e.g., the manufacture of cement), and organismal respiration. CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle. CO_2 has an atmospheric lifetime of up to 200 years and, therefore, is a more important GHG than water vapor, which has an atmospheric residence time of only a few days. CO_2 provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of CO_2 is equal to 1. GWP is a relative measure of how much heat a greenhouse gas traps in the atmosphere.
- **Methane (CH_4).** CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices, and the decay of organic waste in municipal solid waste landfills and wastewater treatment. The chemical lifetime of CH_4 in the atmosphere is 12 years. CH_4 is about 21 times more powerful at warming the atmosphere than CO_2 (a GWP of 21).

- **Nitrous Oxide (N_2O).** N_2O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste. N_2O has a long atmospheric lifetime (120 years) and heat-trapping effects about 310 times more powerful than CO_2 on a per-molecule basis (a GWP of 310).
- **Fluorinated Gases.** HFCs, PFCs, and SF_6 are synthetic, powerful GHGs emitted during a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high GWP gases.

GWP is a relative measure, compared to carbon dioxide, of a compound's residence time in the atmosphere and ability to warm the planet. Mass emissions of GHGs are converted into carbon dioxide equivalent (CO_2e) emissions for ease of comparison.

GHGs, in most cases, have both natural and anthropogenic sources. Natural mechanisms already exist as part of the 'carbon cycle' for removing GHGs from the atmosphere into land or ocean sinks. Levels of GHGs from the increase in anthropogenic sources have exceeded the normal rates of natural absorption. This excess has resulted in increased atmospheric concentrations of GHGs.

GHG emissions in the United States come mostly from energy use. Energy emissions stem largely from economic growth, vehicle transportation, fuels for electricity generation, and weather patterns that secondarily affect heating and cooling needs. Energy-related carbon dioxide emissions, resulting from fossil fuel exploration and combustion account for three-quarters of the human-generated GHG emissions in the United States, primarily in the form of carbon dioxide emissions. More than half the energy-related emissions come from large stationary sources such as power plants; a third comes from transportation; while industrial processes, agriculture, forestry, other land uses, and waste management make up a majority of the remainder of sources (USEPA, 2010).

As previously stated, generation of electricity can produce GHGs with the criteria air pollutants that have traditionally regulated under the federal and State Clean Air Acts. For fossil fuel-fired power plants, the GHG emissions include primarily carbon dioxide, with much smaller amounts of nitrous oxide (N_2O but not NO or NO_2, which together are commonly known as NOx or oxides of nitrogen), and methane (CH_4 – often from unburned natural gas). For wind energy generation projects, the stationary source GHG emissions are much smaller than for fossil fuel-fired power plants, but the associated maintenance vehicle emissions are higher due to the field maintenance requirements that require more vehicles and more travel within the project site. Other sources of GHG emissions include SF_6 from high voltage equipment and HFCs and PFCs from refrigeration equipment. These other sources of GHG emissions are small and more likely to be easily controlled, reused or recycled.

Global carbon dioxide emissions are expected to increase by 1.9 percent annually between 2001 and 2025 (EIA, 2010). Much of the increase in these emissions is expected to occur in the developing world where emerging economies are fueled with fossil energy, such as in China and India. Around 2018, developing countries' emissions are expected to surpass the emissions of industrialized countries; increasing by 2.7 percent annually between 2001 and 2025, faster than the world average.

Climate models predict that the average temperature at the Earth's surface could increase from 2.5 to 10.4ºF above 1990 levels by the end of the 21st century if GHGs continue to increase. Other aspects of the climate are also changing such as rainfall patterns, snow and ice cover, and sea level.

Climate change affects people and other biota. Scientists are certain that increasing the concentration of GHGs will change the planet's climate; however, they are not sure by how much the climate will change, at what rate it will change, or what the exact effects will be globally or locally. Scientists worldwide are working to better understand future climate change and how the effects will vary by region and over time.

Some changes to global climate are already occurring. These include: sea level rise, receding glaciers, changes in the range and distribution of plants and animals, lengthening of growing seasons, trees blooming earlier, ice on rivers and lakes freezing later and breaking up earlier, and thawing of permafrost.

Scientists believe that most areas in the United States will continue to warm, although some will likely warm more than others. Predicting which parts of the country will become wetter or drier is extremely difficult, but scientists generally expect increased precipitation and evaporation, and overall drier soil in the middle parts of the country. The northern regions such as Alaska are expected to experience the most warming. To address climate change concerns, the United States government has established a comprehensive policy with three basic components:

- Slowing the growth of emissions;
- Strengthening science, technology and institutions; and
- Enhancing international cooperation.

Currently, the federal government is using voluntary and incentive-based programs to reduce emissions and has established a variety of programs promoting climate technology and science. The United States prepared a comprehensive strategy in February 2002 to reduce the GHG intensity by 18% over the 10-year period from 2002 to 2012. GHG intensity is a measurement of GHG emissions per unit of economic activity. By meeting this commitment the United States will prevent the release of more than 500 million metric tons cumulatively between 2002 and 2012 (Climate Vision, 2007).

3.3.2 Applicable Regulations, Plans, and Standards

Background

In 1988, the United Nations and the World Metrological Organization established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consisted of more than 50 voluntary programs. In October 1993, President Bill Clinton announced his Climate Change Action Plan, which had a goal to return GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions (CAPCOA, 2008).

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments do the following: gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change (UNFCCC, 2007).

A particularly notable result of the United Nations Framework Convention on Climate Change efforts was a treaty known as the Kyoto Protocol which was negotiated in December 1997. The agreement came into force on February 16, 2005 following ratification by Russia on November 18, 2004. When countries sign the treaty, they demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. As of December 2006, a total of 169 countries and other governmental entities have ratified the agreement. Notable exceptions include Australia and the United States, the nations with two of the highest per capita carbon emissions. Although United States Vice President Al Gore symbolically signed the Protocol in 1998, the United States Congress must formally ratify the Protocol but has not done so to

date. Other countries, like India and China, which have ratified the protocol, are not required to reduce carbon emissions under the present agreement despite their relatively large populations.

On September 27, 2006, the State of California enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. The legislature stated that "global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." (AB 32). The Act caps California's GHG emissions at 1990 levels by 2020 and is discussed in detail below.

Global warming and climate change have received substantial public attention for more than 15 years. For example, the Global Change Research Act of 1990 established the United States Global Change Research Program to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision making. Even so, the analytical tools to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale remain unrealized.

3.3.2.1 Federal

U.S. Environmental Protection Agency (USEPA)

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the USEPA must determine whether: (1) emissions of GHGs from new motor vehicles cause or contribute to air pollution; (2) emissions may reasonably be anticipated to endanger public health or welfare; or (3) the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA is required to follow the language of section 202(a) of the Clean Air Act (CAA). The Supreme Court decision resulted from a petition for rulemaking under section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the Administrator signed the proposed "Endangerment and Cause or Contribute Findings for GHGs under Section 202(a) of the CAA". The USEPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse as air pollution that endangers public health and welfare under CAA section 202(a). These Findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. The USEPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia, and Seattle, Washington. The USEPA carefully reviewed, considered, and incorporated public comments and issued final Findings on December 15, 2009 (FR, 2009) that became effective on January 14, 2010 (USEPA, 2011).

Specific GHG Regulations that the USEPA have been adopted to date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA, 2009). The Alta East Wind Project (AEWP) is not believed to trigger GHG reporting as required by this regulation.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

The USEPA recently mandated application of Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (USEPA, 2011). This Project would not trigger PSD permitting as required by this regulation.

3.3.2.2 State

Statewide rules and regulations have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under the CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a proposed project are required where a project may result in a significant addition of GHGs. Certain Air Pollution Control Districts (APCDs) have proposed their own levels of significance. The Eastern Kern Air Pollution Control District (EKAPCD), which has regulatory authority over the AEWP air emissions, has not established a significance threshold for Eastern Kern County.

Senate Bill 1368

Senate Bill 1368 (SB 1368) was enacted in 2006, and required the California Public Utilities Commission (CPUC) to establish a CO_2 emissions standard for base load generation owned by or under long-term contract with publicly owned utilities. The CPUC established a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO_2 per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publicly owned companies on the CPUC website and establishes a process to determine compliance with the EPS. The AEWP, as a renewable energy generation facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368.

Assembly Bill 32

Assembly Bill 32 (AB 32), also known as the California Global Warming Solutions Act of 2006, was established to mandate the quantification and reduction of GHGs to 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: CO_2, CH_4, N_2O, HFCs, PFCs and SF_6. This agreement represents the first enforceable state-wide program in the U.S. to cap all GHG emissions from major industries that includes penalties for non-compliance. National and international actions will be necessary to fully address the issue of global warming, but AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the State that serve California residents and businesses (CAPCOA, 2008).

AB 32 charges the CARB with responsibility to monitor and regulate sources to reduce GHG emissions. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors which contribute the most to emissions of GHGs, including transportation.

Additionally, the bill requires:

- GHG emission standards to be implemented by 2012; and
- The CARB to develop an implementation program and adopt GHG control measures "to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources." The CARB issued a draft Climate Change Scoping Plan in December 2008.

The Climate Change Scoping Plan identified a cap-and-trade program as one of the strategies to reduce the GHG emissions. CARB staff recommended an amount of 427 million metric tons of carbon dioxide equivalent (MMT CO_2e) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The Board approved the 2020 limit on December 6, 2007. This limit is an aggregated statewide limit, rather than sector- or facility-specific. In designing emission reduction measures, the CARB must minimize

costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the State's efforts to improve air quality.

The Climate Change Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program. These measures have been introduced through four workshops between November 30, 2007 and April 17, 2008. A draft scoping plan was released for public review and comment on June 26, 2008 followed by more workshops in July and August, 2008. The proposed scoping plan was released on October 15, 2008 and approved at the Board hearing on December 12, 2008.

Per CARB's Scoping Plan Measures Implementation Timeline (CARB, 2010), the following has occurred:

- 15 of 30 ARB regulations approved, including all nine Discrete Early Actions;
- Approved and proposed measures would provide over 70 MMT CO_2e in 2020 — 87% of the 2020 goal of reducing 80 MMT CO_2e; and
- First year of Mandatory Reporting complete – 97% compliance rate.

The AEWP, as a wind energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the CARB for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code sections 38500 et seq.).

The CARB approved GHG Cap and Trade regulations in late 2011 that became effective on January 1, 2012. However, the AEWP will not be subject to this regulation since the AEWP's regulated operating emissions would be well below the regulation's applicable threshold of 25,000 MT CO_2e annual emissions.

California Renewable Portfolio Standard Program

Senate Bill (SB) 1078 established California's Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources. The bill requires the California Energy Commission to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least one percent (1%) per year so that 20 percent of its retail sales were procured from eligible renewable energy resources.

In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20 percent of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33 percent when Governor Schwarzenegger signed Executive Order S-14-08 in November 2008. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. On September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

The 33 percent RPS goal became law when SB X1-2 was signed into law by Governor Brown in April 2011. SB X1-2, which will be codified into the California Public Resources Code, requires that all elec-

tricity retailers in the state meet a 33 percent RPS by the end of 2020, and also requires that they meet a 20 percent RPS by 2013, and a 25 percent RPS by 2016. This law does not specifically apply to the Project, but the AEWP would help electricity retailers meet RPS obligations required under this law.

3.3.2.3 Local

The AEWP boundaries are located predominately within the Kern County General Plan (KCGP) with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The applicable KCGP policies, goals, and implementation measures related to climate change and greenhouse gases, are discussed below. The Mojave Specific Plan does not contain policies specific to climate change and greenhouse gases. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to climate change and greenhouse gases.

Kern County General Plan (KCGP)

The policies, goals, and implementation measures in the KCGP applicable to air quality as related to the AEWP are provided in the air quality chapter of this document. Some of these policies, goals, and implementation measures would indirectly impact GHG emissions through the reduction of fossil fuel use.

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a "white paper" on evaluating GHG emissions under CEQA (CAPCOA, 2008). The CAPCOA white paper strategies are guidelines and have not been adopted by any regulatory agency. The white paper serves as a resource to assist lead agencies in evaluating GHGs in environmental information documents. The methodologies used in this GHG analysis are consistent with the CAPCOA guidelines.

As stated above the CAPCOA White Paper (CEQA and Climate Change) serves as a resource to assist lead agencies in evaluating GHGs, and specifically includes a disclaimer on its first page that reads: "This paper is intended as a resource, not a guidance document. It is not intended and should not be interpreted, to dictate the manner in which an air district or Lead Agency chooses to address GHG emissions in the context of its review of projects under CEQA. This paper has been prepared at a time when California law has been recently amended by the Global Warming Solutions Act of 2006 (AB 32) and the full programmatic implications of this new law are not yet fully understood."

On page 33 of the CAPCOA document is the following statement: "This threshold approach would require a project to meet a percent reduction target based on the average reductions needed from business-as-usual emission from all GHG sources. Using the 2020 target, this approach would require all discretionary projects to achieve a 33 percent reduction from the projected business-as-usual emission from all GHG sources in order to be considered less than significant."

Since the publication of this CAPCOA White Paper in January 2008, the AB 32 Scoping Plan has refined that percentage to 28.6 percent, which the County has rounded up to 29 percent for mitigation purposes. The projected build out of the AEWP is before 2020. While the traffic model did use 2035 for a projection, the development will be constructed well before that date. If not, it will be required to comply with any and all building codes and General Plan requirements to address the 2050 goal. The County has not required development to conform to a goal established for 2050 due to the technology changes and lifestyle changes that will occur in California over the next 40 years. There is no nexus for such a standard and it is considered speculative under CEQA for a project-level Environmental Impact Report.

Energy, Efficiency and Conservation Projects

On June 16, 2009, the Board of Supervisors approved the proposed list of Energy, Efficiency and Conservation projects for which the County will request funding under the provisions of HR 1, the American Recovery and Reinvestment Act. The Planning Department has requested an allocation for the prepara-

tion of a Climate Change Action Plan for both County General Plans. California's Climate Scoping Plan calls for local governments to reduce GHG emissions through the adoption of local programs as an important strategy to reduce community-scale GHG emissions. The AEWP's conformance with an adopted Climate Change Action Plan will ensure the goal of AB 32 can be attained with this new development.

3.4 Cultural Resources

This section of the Draft Plan Amendment (PA) and Draft Environmental Impact Statement /Environmental Impact Report (EIS/EIR) provides contextual background information on cultural resources in the Alta East Wind Project (AEWP) area, including the area's prehistoric, ethnographic, and historical settings. This section also includes a review of previous studies, the results of cultural surveys within the AEWP area, and evaluation of resource significance.

This section is based on the cultural resources records searches and inventories conducted by CH2MHILL and discussed in their *Cultural Resources Inventory Report for the Alta East Wind Project* (CH2MHILL, 2010a) and their *Addendum No. 1 to the Cultural Resources Inventory Report for the Alta East Wind Project* (CH2MHILL, 2011i). The cultural evaluations were conducted pursuant to Section 106 of the National Historic Preservation Act (NHPA) (36 CFR 800) and in compliance with Section 5024.1 of the California Public Resources Code (PRC) to determine the presence of historic properties within the AEWP Area of Potential Effect (APE). In addition, the Bureau of Land Management (BLM) has initiated consultation with Native American tribes to identify resources of cultural or religious significance.

For the purposes of the California Environmental Quality Act (CEQA), "historical resources" generally refer to prehistoric and historical archaeological sites and the built environment. Historical resources can also include areas determined to be important to Native Americans such as "sacred sites." Sacred sites are most often important to Native American groups because of the role of the location in traditional ceremonies or activities.

3.4.1 Environmental Setting

The AEWP is located in a transition area where the Mojave Desert lies adjacent to the Tehachapi Mountains, one of southern California's Transverse Ranges, which connect the Coast Ranges on the west to the southern end of the Sierra Nevada Mountains on the east. This range separates the Mojave Desert from the southernmost end of the Great Central Valley. The AEWP, situated at elevations between 3,000 and 4,000 feet above mean sea level, is located near unincorporated Mojave, California in Kern County (County).

Precipitation within the AEWP averages about 10 inches annually. Rain typically falls in the desert climate of the AEWP in winter, although the summer monsoons can bring rain as well. Snow occurs at the higher elevations. Southwest winds regularly blow through the area, funneled through Oak Creek and Tehachapi Passes, which connect the San Joaquin Valley to the Mojave Desert through the Tehachapi Mountains. In the fall, a reversal of wind direction, Santa Ana conditions, frequently occurs.

Deposition within the AEWP consists of older Plio-Pleistocene alluvium, and recent Holocene alluvium. A large part of the AEWP area is located within the extensive alluvial fans which extend south and east from the Tehachapi Mountains. Alluvial deposition occurs within some of the AEWP within the Tehachapi Mountains as well. Plutonic rocks, including quartz monzonite, granodiorites, and tonalites, and igneous rocks, such as basalts, andesites, and rhyoites, occur within the AEWP (CH2MHILL, 2010a:2-1). Prehistoric people utilized these materials for both groundstone and flaked stone tools.

3.4.1.1 Cultural Setting

The following information is from the cultural report prepared for the project, titled *Cultural Resources Inventory Report for the Alta East Wind Project, Kern County, California* (CH2MHILL, 2010a); and provides the prehistoric and ethnographic setting for the project area. Archaeological sites in the area where the project site is located are generally included in the Mojave Desert chronologies as the people in the area appear to have moved from the deserts into the mountains depending upon the season. Thus, artifact assemblages from archaeological sites in this area most closely resemble those recorded in the Mojave Desert (CH2MHILL, 2010a:2-2).

Prehistoric Setting

Generally, cultural developments in southern California have occurred gradually and have shown long-term stability making the synthesis of chronologies and applying them to specific locales problematic. Of the many chronological sequences proposed for southern California, two primary regional syntheses have been commonly used for the southern California deserts. The first, advanced by Wallace in 1955 and then refined in 1978, uses major cultural developments to define four cultural horizons, each with characteristic local variations—Early Period (Early Man Horizon), Milling Stone, Intermediate, and Late Period. In 1962, Wallace modified this chronology specifically for the high deserts of southern California. Warren defines five periods in southern California prehistory—Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Protohistoric. In 2007, however, a new synthesis of cultural prehistory in the Mojave was presented by Sutton and others, which includes results from 20 years of extensive fieldwork conducted in the Mojave Desert by various individuals and groups. Sutton et al. divides the Mojave Desert prehistory into four periods—Pleistocene, Early Holocene, Middle Holocene, and Late Holocene. Each period is further subdivided into complexes generally based on Warren. Although the following discussion includes Wallace's work as well as Warren's chronology, it is based largely on the new work conducted post-1984 and a relatively newly proposed chronology. See Table 3.4-1 for a brief comparison of these three chronologies (CH2MHILL, 2010a:2-2).

Neither Warren's nor Wallace's chronologies begin prior to Terminal Pleistocene ca. 12,000 B.C. More sites in North and South America are beginning to be accepted as dating to earlier times and although the Sutton et al. chronology acknowledges this fact by the inclusion of the hypothetical Pre-Clovis Complex, no sites from this period are currently documented in the Mojave Desert. A small faction of the archaeological community has proposed Pre-Clovis sites within the Mojave Desert, but much of this data remains currently unpublished and not substantiated (CH2MHILL, 2010a:2-2).

Table 3.4-1. Cultural Chronologies Proposed for the Mojave Desert

	Sutton et al. (2007)		Warren (1984)	Wallace (1962)	
Approximate Date	**Temporal Period**	**Cultural Complex**	**Cultural Period**	**Cultural Horizons**	**Associated Artifacts**
Up to 10,000 B.C.	Pleistocene	Pre-Clovis (Hypothetical)			Unknown
10,000–8,000 B.C.		Paleo-Indian	Clovis	Early Man	Fluted points
8,000–6,000 B.C.	Early Holocene	Lake Mojave	Lake Mojave	Milling Stone	Stemmed points
7,000–3,000 B.C.	Middle Holocene	Pinto	Pinto		Pinto points
		Deadman Lake (currently 29 Palms only)			Contracting stem and leaf shaped points
2,000 B.C.–A.D. 200	Late Holocene	Gypsum	Gypsum	Intermediate	Gypsum and Elko Series points
A.D. 200–1,100		Rose Spring	Saratoga Springs		Rose Spring and Eastgate Series points
A.D. 1,100–Contact		Late Prehistoric	Protohistoric	Late Prehistoric	Desert Series points, ceramics

Source: CH2MHILL, 2010a.

Paleo-Indian Period

The Paleo-Indian Period covers the interval from the first accepted presence of humans in southern California in the late Pleistocene until approximately 8,000 calibrated B.C. Artifacts and cultural activities from this period represent a predominantly hunting culture; diagnostic artifacts include extremely large, often fluted bifaces associated with use of the spear and the atlatl. Populations appeared to have been relatively small and highly mobile, living in temporary camps near readily available water. Evidence for Clovis occupation in the Mojave Desert is currently limited to scattered isolated points and a single site at Lake China, which is presumed to be an occupation site. In the vicinity of the AEWP area, a single Clovis-like point fragment was found in the Tehachapi Mountains (CH2MHILL, 2010a:2-2, 2-3).

Lake Mojave Complex

In the deserts of southern California, the earliest substantive remains of human occupation are found along the shoreline of ancient Lake Mojave in the Mojave Desert of San Bernardino County. The Lake Mojave Period (approximately 8,000 to 6,000 calibrated B.C.) is associated with now-dry pluvial lakes found throughout the Mojave Desert. Artifacts observed at Lake Mojave Period sites include stylized dart points of the Lake Mojave and Silver Lake series, well-made bifacial knives and other cutting tools, large domed scrapers or scraping planes, crescents, occasional cobble core tools, and ground stone implements. Flaked stone artifacts, which make up the largest part of the toolkit, are often formal tools made of non-local materials, while ground stone tools, present in far smaller numbers, generally show ephemeral wear, thus suggesting long-term curation of more-easily transported items and less reliance on floral resources. Site types include extensive habitation sites, small camps, and workshops. In addition to sites known in the Lake Mojave area, a goodly density of Lake Mojave Period artifact assemblages are known at Fort Irwin, Twenty-nine Palms, Lake China, and Lake Rosamond (CH2MHILL, 2010a:2-3, 2-4).

Pinto Complex

The Pinto Complex is the most-widely distributed of the early complexes in the Mojave Desert and occurs in a wide variety of topographic and environmental zones, including near remnant pluvial lake basins, near fossil stream channels, close to springs or seeps, as well as in upland areas. Large Pinto Complex sites with deep middens and a wide range of artifact types appear to correlate with stable water sources. In some parts of the Mojave Desert, a temporal overlap is noted between the Lake Mojave Complex and the Pinto Complex. Recent radiocarbon dates from Fort Irwin, Twenty-nine Palms, and the Garlock Fault site in Kern County range from 8,340 to 6,300 B.C., indicating the development of the Pinto Complex in the early Holocene and corresponding to the end of the Lake Mojave Complex. There appears to be good continuity of flaked stone technologies from one complex to the next, including the material selection of locally available stone as well as use of bifacial and unifacial tool forms. The main distinction between the two periods appears to be the number of ground stone tools found at Pinto sites in comparison to the relative paucity of ground stone tools found at Lake Mojave sites. High levels of ground stone found at Pinto sites indicate that the emergence of intensive plant exploitation began by approximately 7,000 calibrated B.C., before the Altithermal, as previously proposed (CH2MHILL, 2010a:2-4).

Pinto sites are found in a wide range of environments and the flourishing of new economies, including greater plant exploitation, is seen both in the desert as well as on the coast during the Pinto Complex. *Olivella* shell beads have been found with Pinto sites, indicating the beginnings of trade with the coast. Diagnostic artifacts recovered from Pinto Period archaeological sites include heavy keeled scrapers, flat milling stones, manos, and Pinto series projectile points, which are large, coarsely made points, indicating the continued use of darts and atlatls. By the end of the middle Holocene, conditions in the Mojave Desert became much hotter and much drier. Currently, few sites are known to date to the period between 3,000 and 2,000 cal. B.C. and it appears that parts of the Mojave may have been abandoned (CH2MHILL, 2010a:2-4).

Gypsum Complex

The start of the Gypsum Complex coincides with the beginning of the Little Pluvial at approximately 4,000 B.C. and continues into the dry period following the Little Pluvial. Despite the paucity of sites dating to this period, the first good evidence for contact between the desert and the coast dates to the Gypsum Period and Southwestern influence in the California deserts is observed, as well. *Olivella* shell beads and *Haliotis* rings from the coast and split twig figures from the Southwest are found at Gypsum sites. Gypsum Complex toolkits include the diagnostic Elko and Elko-eared points, leaf-shaped points, rectangular-based knives, flake scrapers, T-shaped drills, the occasional large scraper plane, and hammerstones. Elko-series points are generally associated with the spread of Uto-Aztecan speakers throughout the Mojave during this period. A shift in food procurement strategies marks this period. Grinding implements, including manos and milling stones, became common and mortars and pestles were introduced (CH2MHILL, 2010a:2-4, 2-5).

People living in the deserts had adapted to the more arid conditions of the southern California deserts by the end of the Gypsum Complex. New procurement strategies and regular trade contact with peoples living on the coast provided stability to desert dwellers and despite the return to a warmer, drier climate at the end of the Little Pluvial, populations did not decrease in the deserts at the end of the Gypsum Complex as they had at the end of the Pinto Complex. It is possible, based on linguistic evidence, that the Takic branch of the Uto-Aztecan language spread into the Tehachapi Mountains at the end of the Gypsum Complex. Another model proposes that during the warmer and drier Gypsum Complex, populations based themselves in the Sierra Nevada and Tehachapi Mountains and used the desert only on an ephemeral basis (CH2MHILL, 2010a:2-5).

Rose Spring Complex

During this period, a strong coastal influence extends into the western Mojave Desert and Antelope Valley. The bow and arrow moved into the western Mojave Desert at this time. Evidence for a significant population increase and rather dramatic changes in artifact assemblages characterize the Rose Spring Complex in the western Mojave. Within the Antelope Valley, several large village sites with cemeteries and deep middens are recorded. Generally, the Rose Spring Complex appears to be in strong continuity with the Gypsum Complex. Similar artifacts, such as milling stones, manos, mortars, pestles, and incised stones, are still used. Desert populations continued a successful hunting and gathering adaptation to the desert environment through increasingly complex subsistence strategies, including the development of the bow and arrow. These sites contain a variety of trade items, including southern California shell beads, steatite items, and other coastal artifacts. Eastgate and Rose Spring projectile points are the diagnostic artifacts. Ceramics were not widely used in the western Mojave and Antelope Valley during this period and the lack of pottery at the large villages in the region could indicate a negligible Hakataya influence. A high frequency of obsidian at Rose Spring sites, particularly a high frequency of specifically Coso obsidian, indicates either active trade between populations in the western Mojave and populations near the Coso source or frequent travel between the Coso source and the western Mojave (CH2MHILL, 2010a:2-5).

Rose Spring sites are found near springs, washes, and occasionally lakeshores. Architectural evidence of pit houses, wickiups, and other types of structures indicate an increase in sedentism during this period; however, the Medieval Climatic Anamoly began during the Rose Springs Complex. The resulting dessication of lakes and other water sources in the western Mojave Desert appears to have significantly changed settlement patterns, resulting in a shift in dependence upon permanent water sources to more ephemeral ones. The Rose Springs Complex ended by about A.D. 1100 (CH2MHILL, 2010a:2-5).

Late Prehistoric Complexes (A.D. 1100 to Historic Times)

During this period, there was a strong reliance on plant food gathering and hunting of small game, and a decreased reliance on large game. Separate complexes emerged that appear to represent the ethnographic

groups. Anasazi turquoise mining, Hakatayan influence from the Colorado River, and the spread of the Numic Paiute and Shoshone culture spread east from the western Mojave Desert. Seasonal movement was common and resulted in a diverse array of site types. For the populations in the western Mojave and Antelope Valley, large village sites remain marked by a paucity of pottery. Characteristic artifacts include Desert series and Cottonwood projectile points, buffware and brownware ceramics, shell and steatite beads, and milling tools. Trade continues to develop and expand with groups on the coast. Late during the Late Prehistoric Complex, there appears to be an abandonment of large village sites in the Antelope Valley (CH2MHILL, 2010a:2-6).

Ethnographic Setting

The AEWP area is located in the border area occupied by the Kawaiisu and the Kitanemuk. These two groups are discussed below.

Kawaiisu. The Kawaiisu are a relatively recent offshoot of the Chemehuevi and part of the Shoshonean language group and, thus, of the Uto-Aztecan family group. Kawaiisu speech was Ute-Chemehuevi and most-closely related to Chemehuevi. Their main areas of occupation were the southern Sierra Nevada, Tehachapi, and Piute Mountains. Father Garces wrote about Kawaiisu living in the areas of Walker Pass and Tehachapi in 1776. Harrington reported that according to a Kitanemuk consultant, Pedro Cuhueve, at one time a Kawaiisu Rancheria existed in the location of present-day Tehachapi. As the Sierra Nevada Mountains are often considered the division between Great Basin cultures and California cultures, the Kawaiisu, living on that border, exhibited traits of both groups (CH2MHILL, 2010a:2-6).

Although the Kawaiisu lived primarily in the foothills and mountains, they would travel to lower elevations during the cooler seasons. Kawaiisu winter structures were made of willow and tule on a wooden frame with a center smoke hole. Tule mats were used as doors. Sweathouses were earth covered; during the summer, a shade house was constructed for food preparation activities. The Kawaiisu lived in chieftonships, which were generally based on familial ties. Kawaiisu chiefs did not inherit the role of chief; rather any rich Kawaiisu man might become a village chief. A son might succeed his father as chief if he gained enough property on his own, as a man's property was destroyed at his funeral. Jimson weed was employed for religious and shamanistic purposes, as well as puberty rites among the Kawaiisu, much as it was throughout southern California. The Kawaiisu shamans practiced rain magic and rain doctors would minister to the sick as well as summon the rain (CH2MHILL, 2010a:2-6).

Kawaiisu subsistence was based on hunting, fishing, and gathering. Acorns were one of their staple crops. Pinyon nuts could be gathered at higher elevations of Kawiisu territory. Seeds, shoots, leaves, bulbs, tubers, and berries were collected, as well. Large game, including deer, bear, mountain sheep, and antelope, was hunted, as was smaller game including squirrels, mice, and rabbits. The Kawaiisu would join the nearby Tubatulabal and Yokuts in communal antelope drives in the San Joaquin Valley. The Kawaiisu did not practice agriculture; however, they did cultivate tobacco and possibly practiced some burning of dry brush to fuel the following year's growth. Acorns, nuts, seeds, and other gathered foods were stored in small granaries, which were constructed two or more feet above the ground (CH2MHILL, 2010a:2-6, 2-7).

Kawaiisu land was much sought after during the 1800s and into the 1900s by the influx of Americans into the area. Gold had been discovered in Kawaiisu lands and mining claims covered the area. In 1863, 35 unarmed Native Americans, consisting of individuals from Tehachapi and Owens River groups, were killed by a detachment of U.S. soldiers under the command of Captain Moses A. McLaughlin. The soldiers were originally dispatched to the area in response to reports of an intertribal meeting; however, most residents in the area, both Native American and white, felt the killings were unjustified. In the early 1900s, Kawaiisu informants were scattered throughout the general area, living in Monolith, Tehachapi, and various Rancherias. Modern-day Kawaiisu reside in Tejon. According to census results from 1980, native speakers of Kawaiisu numbered less than a few dozen; however, efforts to resurrect the language have begun and the Kawaiisu are currently active in the preservation of their history (CH2MHILL, 2010a:2-7).

Kitanemuk. The Kitanemuk, like the Kawaiisu, were a relatively small group who occupied portions of the Tehachapi Mountains. The Kitanemuk language was Serrano and thus, part of the Takic language family. Father Garces mentions the Kitanemuk briefly in his record and Lt. G.M. Wheeler's 1876 to 1879 map of the Tehachapi Mountains shows an "Indian Settlement" along the Comanche Creek, which would have been in Kitanemuk territory. Like the Kawaiisu, the Kitanemuk lived primarily in the mountains and foothills, but ranged into the lower elevations during the fall and winter (CH2MHILL, 2010a:2-7).

The Kitanemuk were patrilineally organized. Garces noted in his account that the Kitanemuk lived in a communal tule house with individual family rooms surrounding a court. Villages were organized under a chief, a ceremonial manager, shamans, diviners, and other ritualists. This elite group maintained order in the village. Shamans treated major illness, brought rain, and performed at major ceremonies. Jimson weed and tobacco figured in different rituals. Kitanemuk mythology encompassed elements of Chumash, Yokuts, and Gabrielino mythology. The universe was originally created by one being, who also made the First People, which included the ancestors of the birds and animals. The First People drowned or were turned to animals during a great flood, except for six siblings who became the ancestors of the Kitanemuk (CH2MHILL, 2010a:2-7).

Kitanemuk subsistence, like their neighbors the Kawaiisu, was based on hunting, fishing, and gathering. Acorns and pinyon nuts were staple crops. Seeds, shoots, leaves, bulbs, tubers, and berries were collected. Large game, including deer, bear, mountain sheep, and antelope was hunted, as was smaller game including squirrels, mice, and rabbits. The Kitanemuk eventually became known as the Tejon Indians, which actually referred to several groups living in the Tejon Ranch area (CH2MHILL, 2010a:2-7).

Historic Era

The historic context within the AEWP area has been summarized by CH2MHILL (2010a) as follows. In 1542, Juan Rodriguez Cabrillo explored the California coast by ship, entering San Diego Bay and claiming Alta California for Spain. Sixty years later, Sebastian Vizcaino sailed into the San Diego Bay. Exploration of the land was slower to come. Don Gaspar de Portola searched Alta California for suitable mission sites in 1769. Captain Juan Bautista de Anza traveled a desert route to the Mission San Gabriel Arcangel from Mexico in 1774.

In California, the historic era is generally divided into three periods—the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish/Mission Period. The historic period in California began with the establishment of Spanish Colonial military outposts, the first of which was Mission San Diego de Alcalá, built in 1769. The 1770s saw a number of expeditions and surveys travel across the desert areas of southern California. In 1772, Pedro Fages led a group across the western Mojave Desert while pursuing deserters from the San Diego Presidio. Fages appears to have traveled as far north as Willow Springs, approximately 15 miles south of Tehachapi, but his accounts do not indicate he traveled into the AEWP vicinity. The first European to traverse the AEWP site, however, appears to have been Father Francisco Garces in 1776, more than 200 years after Cabrillo sailed the coast. Garces crossed the Tehachapi Mountains traveling north into the San Joaquin Valley, crossing through Oak Creek Pass (CH2MHILL, 2010a:2-9).

Mexican/Rancho Period. The Decree of Secularization, passed in 1834, ended the Mission Period in California. The ranchos of San Bernardino and San Gorgonio were abandoned. The following years were marked by the proliferation of cattle ranching throughout the region, as the Mexican Governor granted vast tracts of land to Mexican (and some American) settlers. The mission lands were then opened for grants by the Mexican government to citizens who would colonize the area and develop the land, generally for grazing cattle and sheep. The AEWP is not located within the boundaries of any rancho (CH2MHILL, 2010a:2-9).

Although trappers and explorers, including Jedediah Strong Smith, Ewing Young, and Kit Carson, traversed the Tehachapi Mountains in the early 1800s, the AEWP and vicinity were not well explored until the American influx of the mid 1800s (CH2MHILL, 2010a:2-9).

American Period. Following the signing of the Treaty of Guadalupe Hidalgo in 1848, the United States took possession of California. The treaty bound the United States to honor the legitimate land claims of Mexican citizens residing in captured territories. The Land Act of 1851 established a board of Land Commissioners to review these records and adjudicate claims, and charged the Surveyor General with surveying confirmed land grants. To investigate and confirm titles of California, American officials acquired the provincial records of the Spanish and Mexican governments that were located in Monterey. Those records, most of which were transferred to the U.S. Surveyor General's Office in San Francisco, included land deeds and sketch maps (CH2MHILL, 2010a:2-9).

From 1852 to 1856, a board of Land Commissioners determined the validity of grant claims. The commissioners rejected many of the original land claims, which then became public domain and fair game for squatters. Ranch titles represented little as collateral. Although the claims of some owners were eventually substantiated, many of the owners lost their land through bankruptcy or the inability to meet the exorbitant interest on their legal debts. Many of the original rancho owners eventually lost their land to the United States. Unsurveyed land boundaries created a loophole through which squatters could occupy plots on the fringes of land grants and eventually come to own those plots through squatters' rights (CH2MHILL, 2010a:2-9, 2-10).

Fremont's second expedition crossed the Tehachapis via Oak Creek Pass on April 14, 1844. The first settlers in the Tehachapi Mountains were called Southern Democrats, an indicator of their allegiance to the South in the days before the Civil War. Between the 1850s and the 1870s, these settlers moved into Tehachapi from El Monte, the terminus of the Southern Emigrant Route near the San Gabriel Mission, heading north through the San Fernando Pass at Beale's Cut, traversing San Francisquito Canyon, continuing north through Willow Springs and by Oak Creek Station, and finally through Oak Creek Pass into Tehachapi (CH2MHILL, 2010a:2-10).

Mining in the general project vicinity began in the 1870s, when Dr. L.A. Crandall found a deposit of clay on Tropico Hill, then called Crandall Hill, west of Rosamond and east of the AEWP. This clay was mined and shipped to a Los Angeles pottery company. The clay from this mine was manufactured into soil pipe and fire brick which was used to replace old plumbing and to build new buildings in the Pueblo de Los Angeles. The 1890s saw a slow-down in this business due to a country-wide depression. The owner of the pottery company, Ezra M. Hamilton, noticed gold flecks in the clay from Crandall Hill. Hamilton subsequently purchased the clay mine from Crandall. Hamilton spent two years looking for gold on the hill and finally found ore in 1894. The best producing mines, the Lida, the Fairview, and the Tropico, produced tons of ore and within months the area saw a huge influx of miners (CH2MHILL, 2010a:2-10).

Agriculture—and orchards, in particular—developed in the Tehachapi Mountains quickly at the end of the 1800s. Pears, especially, were grown throughout the region. The Board of Trade in Tehachapi actively promoted orchard cultivation in 1915. Sheepherders moved into the area with their flocks. In the early 1980s tax incentives became available to companies that could generate electricity through harnessing the power of wind. The first of the wind farms were built shortly thereafter (CH2MHILL, 2010a:2-10).

Mojave. The name Mojave is derived from the populous Yuman tribe who live along the Colorado where California, Arizona, and Nevada meet. The first time Mojave Desert appears in print is in George Wheeler's report for the Wheeler Survey in 1875. The town of Mojave was founded when the Southern Pacific Railroad (SP) reached the area in August of 1876. The station was named Mojave because of its location on the western side of the Mojave Desert. Living shacks and saloons were the first structures built in Mojave. The first house and hotel were constructed by the Inestero family, who moved to Mojave from Bodie in 1876. The first freight depot and post office opened that year, as well. The second major rail line, the Atchison, Topeka, and Santa Fe Railroad (AT&SF), arrived in 1884. Mojave served at the

terminus for the SP Railroad and all SP trains were yarded at Mojave. Both the SP and AT&SF Railroads maintained additional crew and engines to assist trains with the ascent through the Tehachapi Pass (CH2MHILL, 2010a:2-10).

In 1884, the Twenty Mule Teams pulled into Mojave, the terminus for the shipment of borax ore from the Harmony Borax Mining Company mines in Death Valley, 165 miles away. The wagons for these mule teams were constructed in Mojave, as well. Other interesting events in 1884 include the burning of most of the buildings in Mojave, followed shortly by a huge sandstorm that blew down the majority of the newly constructed buildings erected after the fire. The mule teams stopped operating in 1889 when borax was discovered near Barstow. Gold was discovered near Mojave in 1894, bringing another influx of miners and the business district burned down again in 1899. In 1907, the first of the Los Angeles Aqueduct workers arrived in Mojave. Mojave experienced a second gold boom in the 1930s when more discoveries of gold were made near the town (CH2MHILL, 2010a:2-11).

The Marines moved into Mojave in 1942, constructing a Naval Air Station east of town. Navy and Marine pilots trained at the station during World War II. The base was decommissioned after the war. The field was reopened during the Korean Conflict and closed again in 1959. In 1972, the airfield reopened as a part of the Mojave Airport District. Mojave eventually became the home to a number of different aerospace companies, as well as the first inland spaceport in the United States. The first private space flight left Mojave in 2004. Unused planes, as well as the remains of defunct aircraft, dot the small airport's landscape. Mojave also remains a railroad town, mining town, and aqueduct town into the present. The Union Pacific Railroad and the Burlington Northern Santa Fe railroad connect in Mojave. The Golden Queen Mining company plans to begin gold and silver mining operations on Soledad Mountain and an office of the Los Angeles District of Water and Power maintains a branch in Mojave (CH2MHILL, 2010a:2-11).

Wind Energy in the Tehachapis. The Tehachapi Pass is one of the windiest places in the world. Heat from the Mojave Desert sucks air from the Central Valley, which results in east-blowing winds gusting through the Pass in the spring and early summer. Beginning in 1981, developers installed 150 turbines in California, which represented 10 megawatts of power, the first of the California wind farms. The following year, 1,200 turbines were installed. The numbers of installed turbines increased dramatically each subsequent year—in 1983, 2,549 turbines were installed and in 1984, 4,732 turbines were installed at Altamont, Tehachapi, and San Gorgonio. The turbines at these three locations totaled 96 percent of the wind energy capacity in the United States in 1984. Zond Systems, Inc. began the construction of the Victory Garden wind farm in 1981 in Tehachapi Pass. This wind farm consisted of 1,338 turbines by the mid-1980s (CH2MHILL, 2010a:2-11, 2-12).

Los Angeles Aqueduct. An annual report prepared by the superintendent of the Los Angeles City Water Company, William Mulholland, showed that Los Angelenos consumed over 26 million gallons of water per day and additional fresh water for its growing population. Early in 1905, Mulholland announced to the Board of Water Commissioners that the Owens River was the only viable source of water for the city. The river had been identified and suggested to Mulholland earlier that year by Fred Eaton, the previous superintendent of the Los Angeles City Water Company, who was at that time the mayor of Los Angeles. In 1905, the Owens River project was announced to the population of the City of Los Angeles, and the Board of Water Commissioners asked the City to issue 1.5 million dollars in bonds to purchase water and land for an aqueduct to bring water from the Owens Valley into the Los Angeles Basin. The citizens of Los Angeles approved the measure overwhelmingly in September 1905. The plan began with an intake on the Owens River, approximately 35 miles north of Owens Lake, and the system comprised several miles of open canals, both lined and unlined, conduits, tunnels, siphon pipes, flumes, and reservoirs, until the Aqueduct emptied into the San Fernando reservoir (CH2MHILL, 2010a:2-12).

Preparatory work included the construction of roads and trails to move supplies necessary for the construction of the Aqueduct, as well as the construction of power plants, transmission lines, and

telegraph and telephone lines. Five hundred and five (505) miles of roads were constructed; including those parallel to the Aqueduct in the desert divisions to connect to the nearest shipping points on the rail line. Within the Mojave division, the portion of the Aqueduct located in the Alta East project area, supplies were simply hauled by animals or traction engines called Caterpillars over the level desert from Mojave to the Aqueduct and roads weren't necessarily needed. An additional branch of the SPRR, known as the California and Nevada Railroad, was constructed from Mojave, California, north to the Owens Valley to assist in the transportation of materials for the Aqueduct. Suitable materials for cement production were found approximately five miles east of Tehachapi, California. The City of Los Angeles purchased 4,300 acres of land and constructed the Monolith Cement Plant to provide cement for the construction of the Aqueduct (CH2MHILL, 2010a:2-12, 2-14).

By 1909, almost 150 miles of pipe had been laid, bringing water to the Aqueduct route from nearby mountains. A total of 269 miles of water conduit was laid overall, varying in diameter from 2 inches to 12 inches. Pipeline was laid paralleling large sections of the Aqueduct from the intake to the San Fernando Valley. Branch pipe was laid up side canyons and virtually every spring or stream located near the Aqueduct was tapped for its water. Large storage tanks were erected at each camp as movable equipment and the flow from the springs and creeks was collected at night to be moved to the construction sites during the day (CH2MHILL, 2010a:2-14).

By the 1950s the water brought to Los Angeles was not enough to meet the city's needs. Construction on the second Los Angeles Aqueduct began in 1965. It was completed in 1970, running roughly parallel to the first aqueduct for approximately 177 miles beginning at the Haiwee Reservoir. Cement used to manufacture this aqueduct was made at the CPC Mojave Plant. Water from these two aqueducts provides approximately 70 percent of the water used in the City of Los Angeles (CH2MHILL, 2010a:2-14).

3.4.1.2 Identified Cultural Resources

In order to characterize the archaeological sensitivity of the project site, identify and record resources, and define the types of artifacts, features, and Native American resources that could be impacted, a project-specific Cultural Resources Technical Report was prepared. This report, titled *Cultural Resources Inventory Report for the Alta East Wind Project* (CH2MHILL, 2010a) (which includes *Addendum No. 1 to the Cultural Resources Inventory Report for the Alta East Wind Project* [CH2MHILL, 2011i]), is based on the cultural resources records searches and inventories conducted by CH2MHILL. The following paragraphs provide details regarding the content of this study.

Previous Record Searches

A literature search was conducted by a CH2M HILL cultural resources specialist on February 9, 2010 at the California Historical Resources Information System (CHRIS) Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield in consultation with the BLM Ridgecrest Field Office Archaeologist. An additional literature search for the project was conducted by staff at the SSJVIC on March 15, 2010. The searches included a literature review of all known relevant cultural resource surveys, excavation reports, and site records, to ascertain potential archaeological resources within the cultural resources study area, which included a one-mile buffer zone around the AEWP area. The one-mile buffer zone was used pursuant to widely held professional standards and in conjunction with the fieldwork authorization process established for the AEWP with the BLM. The literature search revealed that no less than 50 previous studies had been conducted within the AEWP area. All previous surveys were thoroughly reviewed. Table 3.4-2 lists all previous studies conducted within one mile of the AEWP.

Table 3.4-2. Previous Studies Within One Mile of the Project Area
Note: Gray shading indicates a study that covers a portion of the Project Area

CHRIS Catalogue NADB Numbers	Report Authors and Date
KE-2	Adams et al. (1984)
KE-45	Fleagle (1996)
KE-270	Have Mule Will Travel (1983)
KE-313	Caruso (1982)
KE-527	Jackson (1992)
KE-633	Macko et al. (1993)
KE-634	Macko and Weisbord (1985)
KE-641	McGuire (1990)
KE-651	McManus and McGuire (1985)
KE-715	Noble and Tordoff (1988)
KE-808	Sutton (1989)
KE-837	Parr (1991)
KE-873	Peak (1974)
KE-1029	Salpas (1984)
KE-1030	Salpas (1984)
KE-1087	Schiffman (1982)
KE-1102	Schiffman (1985)
KE-1107	Schiffman (1985)
KE-1113	Schiffman (1985)
KE-1217	Schiffman (1986)
KE-1278	Schiffman (1987)
KE-1279	Schiffman (1987)
KE-1284	Schiffman (1987)
KE-1337	Schiffman (1987)
KE-1340	Schiffman (1989)
KE-1390	Schiffman (1990)
KE-1430	Schiffman (1992)
KE-1486	Schiffman (1992)
KE-1646	Tremaine (1993)
KE-1649	Schiffman (1982)
KE-1662	Uli and Schiffman (1983)
KE-1679	Uli and Schiffman (1984)
KE-1693	Uli and Schiffman (1984)
KE-1709	Uli and Schiffman (1984)
KE-1714	Uli and Schiffman (1985)
KE-1727	Uli and Schiffman (1983)
KE-1829	Young (1978)
KE-1859	Rubelman (1984)
KE-2192	Laylander (1998)
KE-2197	BLM (1998)
KE-2205	BLM (1998)
KE-2224	Laylander (1998)

Table 3.4-2. Previous Studies Within One Mile of the Project Area
Note: Gray shading indicates a study that covers a portion of the Project Area

CHRIS Catalogue NADB Numbers	Report Authors and Date
KE-2294	LSA Associates, Inc. (1999)
KE-2298	Laylander (1999)
KE-2565	Schiffman (2001)
KE-2585	Dodd (2001)
KE-2617	Schmidt (2002)
KE-2651	Billat (no date)
KE-3534	Nilsson et al. (2007)
KE-3571	Switalski (2006)

Source: CH2MHILL, 2011i.

Previously Recorded Resources

The literature search results indicated that a total of 43 resources had been previously recorded within a one-mile radius of the AEWP area (Table 3.4-3). Of these 43 resources, four were found to be located within the boundaries of the AEWP (see Table 3.4-3). It should be noted that the National Register of Historic Places (NRHP)/California Register of Historical Resources (CRHR) resource eligibility status listed in Table 3.4-3 were determined, through previous studies, prior to any evaluations made for the AEWP. Evaluations made specifically for the AEWP are listed in Table 4.4-1 of Section 4.4, Cultural Resources.

Table 3.4-3. Previously Recorded Resources Within One Mile of the Project Area
Note: Gray shading indicates a resource within the Project Boundary

Site Number	Site Type	NRHP Status	CRHR Status	Date Evaluated
15-000320	Lithic scatter	Not evaluated	Not evaluated	—
15-000321	Prehistoric habitation site	Not evaluated	Not evaluated	—
15-001515	Prehistoric milling station	Not evaluated	Not evaluated	—
15-001703	Milling station with artifacts	Not evaluated	Not evaluated	—
15-001704	Milling station with artifacts	Not evaluated	Not evaluated	—
15-001905	Lithic and groundstone scatter	Not evaluated	Not evaluated	—
15-001907	Lithic scatter	Not available	Not available	—
15-002434	Prehistoric habitation site	Not available	Not available	—
15-003534	Historic road grade	Not evaluated	Not evaluated	—
15-003549	Los Angeles Aqueduct	Recommended eligible	Recommended eligible	2006
15-003928	Historic road; The Randsburg Cutoff	Not evaluated	Not evaluated	—
15-004113	Aqueduct City tract; Site record says, “Not a site”	Not evaluated	Not evaluated	—
15-004115	Historic refuse scatter	Not evaluated	Not evaluated	—
15-004116	Historic roads of Mojave, CA	Not evaluated	Not evaluated	—
15-012496	Prehistoric hearth	Not available	Not available	—
15-012498	Lithic scatter	Not available	Not available	—
15-012501	Lithic scatter	Not available	Not available	—
15-012503	Lithic scatter	Not available	Not available	—
15-012710	Historic refuse scatter, cement foundations	Not evaluated	Not evaluated	—

Table 3.4-3. Previously Recorded Resources Within One Mile of the Project Area
Note: Gray shading indicates a resource within the Project Boundary

Site Number	Site Type	NRHP Status	CRHR Status	Date Evaluated
15-012717	Historic refuse scatter	Not evaluated	Not evaluated	—
15-012719	Historic refuse scatter	Not evaluated	Not evaluated	—
15-012797	Lithic scatter	Not available	Not available	—
15-013689	Historic refuse scatter	Not available	Not available	—
15-013841	Lithic scatter	Not available	Not available	—
15-013889	Lithic scatter	Not evaluated	Not evaluated	—
15-013904	Historic railroad spur	Not eligible	Not eligible	2009
15-013909	Historic refuse scatter	Not available	Not available	—
15-013910	Historic linear pipeline	Not available	Not available	—
15-013911	Historic refuse scatter	Not available	Not available	—
15-013912	Historic refuse scatter	Not available	Not available	—
15-013913	Historic can scatter	Not eligible	Not eligible	2009
15-013915	Historic refuse scatter	Not eligible	Not eligible	2009
15-013924	Historic can scatter	Not eligible	Not eligible	2009
15-013931	Historic road alignment	Not available	Not available	—
EP-11	Historic refuse scatter	Not available	Not available	—
EP-17	Lithic scatter	Not available	Not available	—
EP-23	Historic refuse scatter	Not available	Not available	—
S-15	Historic refuse scatter	Not available	Not available	—
S-17	Historic refuse scatter	Not available	Not available	—
S-19	Prehistoric quarry	Not available	Not available	—
S-32	Historic road alignment	Not available	Not available	—
S-33	Historic road alignment	Not available	Not available	—
S-34	Historic road alignment	Not available	Not available	—

Source: CH2MHILL, 2011q.

Project-Specific Archaeological Field Surveys and Methods

CH2MHILL conducted pedestrian surveys of approximately 4,643 acres within and adjacent to the AEWP area, including 100 percent of the AEWP Area of Potential Effects (APE) and the six (6)-mile long transmission line corridor in May 2010 and March 2011. The survey area included other land holdings by the project proponent located outside of the project area. The APE defines the geographic area within which the Project has the potential to directly or indirectly affect historic properties. The Project APE boundary, the portions of the Project in which the maximum extent of all potential direct and indirect project effects would occur, includes the 2,592 acre Project boundary and a 15-meter buffer on either side of the transmission line corridor. The Project APE takes into account all potential direct (ground disturbance) and indirect (visual, noise, vibration, etc.) effects that may result from the Project. Indirect visual impacts associated with the Project are addressed in the Aesthetics section of this EIS/EIR and will not be repeated here.

Site recordation and reconnaissance was conducted by CH2MHILL in August 2010 and July 2011. Survey for prehistoric and historic archaeological resources was performed using pedestrian transects spaced at 15-meter intervals throughout the project's entire survey area. The topography of the project area is varied and ranges from relatively flat lowlands to narrow ridgelines bounded by brush-covered slopes. The entire survey area proposed for the Alta East area was surveyed for cultural resources.

Subsurface exposures, including rodent burrows and cut banks, were examined. Survey crews navigated via a Trimble Geo XT Global Positional System (GPS) unit. Each GPS unit contained the survey area shape files, all previously recorded site boundaries, and all previously recorded resources.

The California Office of Historic Preservation's (OHP's) *Instructions for Recording Historical Resources* defines a site as the location of a prehistoric or historic occupation or activity. Areas with five or more items were recorded as sites, while areas with four or less items were recorded as isolated occurrences (IOs). Features were recorded as sites. Resources separated by more than 50 meters or located on different landforms were recorded as distinct sites or as isolates.

Cultural resources, including previously identified and new sites and isolated finds, were recorded on appropriate Department of Parks and Recreation forms, mapped using a Trimble Geo XT GPS unit, and photographed. Information on the appearance and physical characteristics of the resources as well as the location of the resources was gathered. The survey was non-collection; all artifacts were mapped and photographed in-place. Recordation includes the detailed documentation of all resources, their boundaries and locations, evaluation for inclusion in the NRHP/CRHR, appearance and integrity of each resource, and the method of survey.

Native American Consultation

For the AEWP, Government-to-Government Native American consultation is being conducted by the Ridgecrest BLM Field Office to satisfy requirements of Section 106 of National Historic Preservation Act (NHPA). BLM initiated consultation by letter on August 3, 2008, to the following Tribes and community organizations:

- Tubatulabals of Kern County
- Kern Valley Indian Council
- Monache Intertribal Council
- Nuui Cunni Interpretive Center (operated by the Kern River Paiute Council)

On October 21, 2009, a second letter pertaining to the AEWP was sent out by BLM. Lastly, in a letter dated February 1, 2011, BLM asked for any comments or concerns regarding the AEWP as currently proposed. As of the date of this document, no comments have been received from any of the contacted tribes or community organizations.

Survey Results

CH2MHILL personnel recorded a total of 20 newly discovered cultural resources and 50 isolated finds during the current field survey of the AEWP area. In addition, forms for four previously recorded archaeological sites were updated. It should be noted that the recorded location of site 15-001905 was visited during the field surveys for the Project. However, no site was identified at the plotted location. All of the 20 newly identified cultural resources are located within the AEWP APE. Detailed descriptions of the previously unrecorded cultural resources within the AEWP APE are provided below. Table 3.4-4 lists all cultural resources (including both newly discovered and updated cultural resources) known to occur within the AEWP APE. No built environment resources (historic-period buildings or structures) were documented within the AEWP.

Table 3.4-4. Known Resources Within the Project APE

Site Number	Site Type	Features / Cultural Constituents
Previously Recorded Resources in the Project APE		
15-000321	Prehistoric habitation site	Groundstone, fire-affected rocks, debitage
15-001703	Milling station	3 bedrock mortars, 1 flake tool

Table 3.4-4. Known Resources Within the Project APE

Site Number	Site Type	Features / Cultural Constituents
15-013889	Lithic scatter	Projectile point, flake tool, debitage
Newly Recorded Resources in the Project APE		
S-6	Can scatter; debitage	7 cans, fire-affected cobbles, 2 flakes
S-7	Can scatter	Solder dot cans, sanitary cans, scrap metal
S-8	Can scatter	Solder dot and sanitary cans
S-9	Can dump	300+ cans (solder dot, paint, sanitary, tins, beverage, drums)
S-10	Mining claim	Rock cairn with metal canister
S-11	Mining site	Prospect pit and fire ring
S-12	Lithic scatter	3 tool fragments and debitage
S-15	Historic well	Riveted pipe well, solder dot and sanitary cans
S-17	Historic refuse scatter	Hole-in-top cans, bottle fragments, amethyst glass sherds
S-18	Milling feature	Single bedrock mortar, no artifacts
S-19	Milling feature	Single bedrock mortar, no artifacts
S-21	Rock cairn	11 cobbles, no artifacts, unknown age
S-22	Rock cairn	Cobbles, no artifacts, unknown age
S-23	Rock cairn	Cobbles, milled wood post, unknown age
S-24	Historic refuse scatter	Hole-in-top and matchstick filler cans, bottle fragments, metal debris
S-25	Historic refuse scatter	Hole-in-top and matchstick filler cans, bottle fragments, amethyst glass sherds, metal debris
S-26	Fire-affected rock feature	70+ fire-affected rocks, 1 mano fragment
S-27	Fire-affected rock feature	40+ fire-affected rocks, no artifacts
S-28	Fire-affected rock feature	35+ fire-affected rocks, no artifacts
S-29	Prehistoric habitation site	6-meter diameter circular depression, groundstone, flake tools, fire-affected rocks, debitage

Source: CH2MHILL, 2010a ; CH2MHILL, 2011i.

3.4.2 Applicable Regulations, Plans, and Standards

The applicable federal, State and local regulations, plans, and standards are discussed below. As the NEPA lead agency, the BLM is responsible for compliance with NEPA and Section 106 of the NHPA, and as the CEQA lead agency, the County is responsible for compliance with applicable State and local regulations.

3.4.2.1 Federal

National Historic Preservation Act of 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the NRHP, established the position of State Historic Preservation Officer and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any

historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 Code of Federal Regulations (CFR) Part 800, on such undertakings.

National Register of Historic Places (NRHP)

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- **Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B:** It is associated with the lives of persons who are significant in our past.
- **Criterion C:** It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

West Mojave Plan

The project study area falls within the area covered by the Bureau of Land Management (BLM) West Mojave Plan (WMP), whose conservation program applies to both public and private lands. The WMP is a pending habitat conservation plan pursuant to the Federal Endangered Species Act (ESA) and an amendment to the California Desert Conservation Area (CDCA) Plan, which recognizes the importance of paleontological, prehistoric, and historic resources and places of cultural and religious value to Native Americans. In addition to its responsibilities under applicable federal laws and regulations, the WMP's goals related to cultural resources include the following:

- Conduct an inventory of cultural resources to the fullest extent possible to expand knowledge of these resources

- Protect and preserve to the greatest extent possible representative samples of these resources
- Give full consideration to these resources during land use planning and management decisions
- Manage to maintain and enhance resource values
- Ensure that BLM's activities avoid inadvertent damage to cultural resources
- Achieve proper data recovery where adverse impacts cannot be avoided

The CDCA Plan also states that Native American values will be considered in all CDCA land use and management decisions.

3.4.2.2 State

California Environmental Quality Act (CEQA)

CEQA requires the assessment of a proposed project's effects on cultural resources. Pursuant to CEQA, a "historical resource" is a resource listed in, or eligible for listing in, the CRHR. In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with State guidelines are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a lead agency, as defined by CEQA, from determining that the resource may be a historical resource as defined in California PRC Section 5024.1. CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historical resource, or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- The archaeological resource contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
- The archaeological resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

California Register of Historical Resources (CRHR)

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission (SHRC) determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1.** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2.** It is associated with the lives of persons important in our past.

- **Criterion 3.** It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
- **Criterion 4.** It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC Section 4852(c), a cultural resource must retain integrity to be considered eligible for the CRHR. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as grazing and off-road vehicle use (both of which occur within the project site), often lack integrity because they have been directly damaged or removed from their original location, among other changes.

Typically, a prehistoric archaeological site in California is recommended eligible for listing in the CRHR based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the SHRC; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type in the State or within a large geographic region (Northern, Central, or Southern California);
- It is associated with an individual or group having a profound influence on the history of California; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of historical interest designated after December 1997 and recommended by the SHRC are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a point of historical interest, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type within the local geographic region (city or county);

- It is associated with an individual or group having a profound influence on the history of the local area; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

Native American Heritage Commission

Section 5097.91 of the California PRC established the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another State agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a State or local agency."

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5

The California Penal Code, Section 622.5, provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

Public Resources Code, Section 5097.5

Public Resources Code, Section 5097.5, defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

3.4.2.3 Local

The project boundaries are located predominately within the Kern County General Plan with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to cultural resources. The Mojave Specific Plan contains policies, goals, and implementation measures that are general in nature and not specific to development such as the project.

Kern County General Plan (KCGP)

Chapter 1. Land Use, Open Space, and Conservation Element

1.10.3. – Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

- **Policy 25.** The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

- **Implementation Measure K.** Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
- **Implementation Measure L.** The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
- **Implementation Measure M.** In areas of known paleontological resources, the County should address the preservation of these resources where feasible.
- **Implementation Measure N.** The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.
- **Implementation Measure O.** On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

Kern County Ordinance (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to cultural resources issues related to the project.

- **19.64.140(H):** All wind projects, including wind generators and towers, shall comply with all applicable County, State, and federal laws, ordinances and regulations.

3.5 Environmental Justice

On February 11, 1994, President Clinton issued an "Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (Executive Order 12898, 1994). This Order focuses federal attention on environmental and human health conditions in minority communities and low-income communities. The Order is intended to promote non-discrimination in Federal Programs substantially affecting human health and the environment and to provide for information access and public participation in matters of human and environmental health.

The approach in this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) is to achieve compliance with the letter and spirit of the President's Executive Order by addressing the question of whether and how the impacts of the Proposed Action and alternatives may disproportionately affect minority and low-income populations. This section provides demographic information to analyze distributional patterns in minority populations and low-income populations on a regional basis and characterizes the distribution of such populations adjacent to the Alta East Wind Project (AEWP) site.

3.5.1 Environmental Setting

Study Area

As defined by the "Final Guidance for Incorporating Environmental Justice Concerns" contained in the Guidance Document of United States EPA's NEPA Compliance Analysis (USEPA, 1998), minority and low-income populations are identified where either:

- The minority or low-income population of the affected area is greater than 50 percent of the affected area's general population; or
- The minority or low-income population percentage of the affected area is meaningfully greater (50 percent or greater per EPA Guidance Document) than the minority or low-income population percentage in the general population of the jurisdiction or other appropriate unit of geographic analysis (i.e., County or Native American Indian reservation) where the affected area is located.

The "affected area" for determining environmental justice impacts for the AEWP includes a one-hour commute area. To represent this area, environmental justice setting data is presented at a local, regional, and countywide level. The local level is intended to represent the geographic extent of AEWP site specific environmental impacts on proximate and adjacent sensitive receptors. The AEWP site itself, as well as the surrounding area, are all contained within one U.S. Census Tract. The AEWP site is located within Census Tract 60.05 in Kern County (U.S. Census, 2010a). Due to the rural location of the AEWP site, this census tract is quite large consisting of roughly 200 square miles (U.S. Census, 2010a). Therefore, by evaluating the "affected area" at 200 square miles for environmental justice, the analysis will focus on the smallest geographic area where 2010 U.S. Census data is available and can be applied to assessing impacts specific to the populations within the vicinity of the AEWP rather than the region as a whole.

For comparative purposes, and to evaluate population demographics of those receptors potentially impacted by more regional-wide impacts, the Bakersfield Census County Division (CCD) has been evaluated. Census county divisions (CCDs) are geographic statistical subdivisions of counties established cooperatively by the Census Bureau and officials of state and local governments in states where minor civil divisions (MCDs) either do not exist or are unsatisfactory for census purposes. Therefore, the Bakersfield CCD includes a number of small rural communities within a one-hour commute of the AEWP area. In addition to the Bakersfield CCD, and based on the workforce and commute trip distribution provided in Sections 4.13 and 4.16, respectively, the two other major communities within a one-hour commute distance are determined to be the Cities of Lancaster and Palmdale. These communities are included within the North Antelope Valley CCD. Furthermore, the North Antelope Valley CCD contains a number of other small

communities within the Antelope Valley (including the Mojave Desert area) within a one-hour commute of the AEWP site.

Additionally, for comparative purposes to both the localized and regional study areas, environmental justice demographic data is also provided for Kern County as a whole. While the cities of Lancaster and Palmdale, as well as other local communities within the northern Antelope Valley are located within Los Angeles County, due to the distance of the remaining portions of Los Angeles County in respect to the AEWP site, presenting data for Los Angeles County as a whole would not provide basis for comparison.

The environmental justice analysis presented in Section 4.5 evaluates both the adverse and beneficial impacts of the AEWP to identified environmental justice demographic populations.

3.5.1.1 Minority Population

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines "minorities" as individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black not of Hispanic origin; or Hispanic (without double-counting non-white Hispanics falling into the Black/African-American, Asian/Pacific Islander, and Native American (Indian) categories).

The total minority population for each census tract, for the purposes of this analysis, has been calculated as follows:

- Total minority population = Black/African-American + Hispanic + Asian/Pacific Islander + Native American (without double-counting non-white Hispanics falling into the Black/African-American, Asian/Pacific Islander, and Native American (Indian) categories)

Table 3.5-1 lists the jurisdictions within one mile of the AEWP site, along with the minority percentage of the population of each jurisdiction. As shown in Table 3.5-1, Census Tract 60.07 has substantially lower minority percentages than the Bakersfield CCD, North Antelope Valley CCD, and Kern County as a whole, and is well below 50 percent. As shown, no local or regional study area contains a low-income population greater than 50 percent.

Table 3.5-1. Population Characteristics of AEWP Site Local and Regional Areas

Jurisdiction	Total Population	Minority Population	Low-Income Population
Census Tract 60.07	13,928	1,602 (11.5%)	1,269 (9.1%)
Bakersfield CCD	372,253	156,246 (42.0%)	81,010 (21.8%)
North Antelope Valley CCD	190,690	81,346 (42.7%)	38,138 (20.0%)
Kern County	780,953	276,607 (35.4%)	151,301 (19.4%)

Source: U.S. Census Bureau, 2010.

3.5.1.2 Low-Income Population

In 1997, the President's Council on Environmental Quality issued Environmental Justice Guidance that defines "low-income populations" as populations with mean annual incomes below the annual statistical poverty level. Table 3.5-1, above, lists the low-income percentage of the population contained within Census Tract 60.05, Bakersfield CCD, North Antelope Valley CCD, and Kern County. As shown in Table 3.5-1, Census Tract 60.07 has a substantially lower percentage of persons in poverty than the Bakersfield CCD, North Antelope Valley CCD, and Kern County as a whole, and is well below 50 percent. As shown, no local or regional study area contains a low-income population greater than 50 percent.

3.5.2 Applicable Regulations, Plans, and Standards

3.5.2.1 Federal

Executive Order 12898

Title VI of the Civil Rights Act of 1964 (Public Law 88-352, 78 Stat.241) prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance. Executive Order 12898, "Federal Actions to address environmental justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on agencies to achieve environmental justice as part of this mission (59 Fed. Reg. 7629 (Feb. 16, 1994)). The order requires the U.S. Environmental Protection Agency (USEPA) and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

The Council on Environmental Quality (CEQ) has oversight responsibility for the Federal Government's compliance with Executive Order 12898 and NEPA. The CEQ, in consultation with the USEPA and other agencies, has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. According to the CEQ's "Environmental Justice Guidance under the National Environmental Policy Act," agencies should consider the composition of the affected area to determine whether minority populations or low-income populations are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects (CEQ, 1997).

Bureau of Land Management Land Use Planning Handbook, Appendix D

BLM Land Use Planning Handbook, H-16010-1, Appendix D, Section IV (Environmental Justice Requirements) provides guidance for assessing potential impacts on population, housing, and employment as they relate to environmental justice. Potential adverse and beneficial of these three issues is evaluated in Section 4.5. However, BLM Land Use Planning Handbook, Appendix D, also describes variables such as lifestyles, beliefs and attitudes, and social organizations with respect to environmental justice. These variables were not evaluated in this analysis, as they are cannot be readily quantified for the purposes of impact assessment and do not provide any additional analytical value in terms of evaluating potential environmental justice impacts.

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The AEWP would be located within the boundaries of the BLMs California Desert Conservation Area (CDCA). The CDCA covers 25 million acres of land and serves as the context for BLM's land-use management of these public lands (BLM, 2007). The BLM West Mojave Plan serves as a Habitat Conservation Plan and CDCA amendment (BLM, 2005b). A review of both the CDCA Plan and the West Mojave Plan indicated that no specific requirements regarding Environmental Justice were identified beyond those discussed by the BLM within their Land Use Planning Handbook, Appendix D (BLM, 2007, 2005a, and 2005b).

3.5.2.2 State and Local

No State regulations, plans or standards related to Environmental Justice would be applicable to the AEWP.

Kern County

Kern County General Plan (KCGP)

The policies, goals, and implementation measures in the KCGP for population and housing applicable to the AEWP are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the AEWP. Therefore, they are not listed below, but, as stated in Chapter 2, "Introduction," all policies, goals, and implementation measures in the KCGP are incorporated by reference.

Chapter 1. Land Use, Open Space, and Conservation Element – 1.0 General Provisions

Policies

- **Policy 6.** The County shall ensure the fair treatment of people of all races, cultures, incomes and age groups with respect to the development, adoption, implementation and enforcement of land use and environmental programs.
- **Policy 7.** In administering land use and environmental programs, the County shall not deny any individual or group the enjoyment of the use of land due to race, sex, color, religion, ethnicity, national origin, ancestry, lawful occupation or age.

3.6 Lands and Realty

This section describes existing land use conditions in the AEWP area. Land use is assessed here by analyzing current land activities, land ownership, zoning (where applicable), and land use designations in adopted plans and policies. An assessment of land use must also consider legal guarantees or limitations such as those provided by easements, deeds, rights-of-way (ROWs), claims, leases, licenses, and permits. BLM-administered lands are not zoned, but they may also be encumbered by easements, ROWs, mining claims, permits, and the Multiple-Use Class (MUC) guidelines as designated by the California Desert Conservation Area (CDCA) Plan. Analysis of the AEWP's consistency with applicable goals and policies of the Kern County General Plan (KCGP) and Mojave Specific Plan are included in Chapter 4.06, along with analysis of the AEWP's potential impacts on land use and recommended mitigation measures.

3.6.1 Environmental Setting

3.6.1.1 General Characteristics and Existing Land Uses

The proposed AEWP would be located on BLM- and County-administered lands in southeastern Kern County (see Figure 2-4 in Appendix A). The site is generally characterized as sparsely developed and rural. Land uses in and around the AEWP site consist of open space with scattered residences, off-highway vehicle use, and livestock grazing. Two BLM grazing allotments are within the AEWP boundaries. The Warren Allotment is located entirely within the AEWP site and the Hanson Common Allotment surrounds the AEWP site. Existing developments within and surrounding the AEWP site include ROWs for underground pipelines, underground portions of the Los Angeles Aqueduct, Southern California Edison (SCE) electric transmission lines, Union Pacific Railroad (UPRR) railroad siding (a short stretch of railroad track used to store rolling stock or enable trains on the same line to pass), and a Los Angeles Department of Water and Power (LADWP) electric transmission line easement. The nearest populated area is located to the northeast, in the outskirts of the unincorporated Community of Mojave. The Pacific Crest Trail comes closest to the AEWP site in the southeastern corner of Section 30, T 32 S R 35 E, and passes within one mile of the project at this location. The closest airport is the Mojave Airport located three miles southeast of the AEWP boundary.

3.6.1.2 Land Ownership/Management

Figure 2-4 shows the current land ownership in the project area. Most of the AEWP site would be on 2,024 acres under the jurisdiction of the BLM, and 568 acres are private land under the jurisdiction of the County. BLM land use designations established in the CDCA Plan (BLM, 1980), as amended, would apply to the portions of the AEWP site that are located on BLM-administered land. The KCGP designations and zoning would apply to the portion of the project located on private land.

The transmission line route would be adjacent to and/or cross several other proposed and constructed wind projects, including the Alta–Oak Creek Mojave Project, the Alta Infill Project, and the Alta Infill II Project. The transmission line would run along a portion of the Alta Infill II Project alignment, and would be located in or parallel to existing transmission line corridors. The majority of the transmission line would be within land under the jurisdiction of the County, with the exception of a 0.9-mile segment on public land under BLM jurisdiction.

BLM Land Use Designations

The public lands portion of the AEWP site is within the BLM's CDCA, which encompasses 25 million acres in southern California designated by Congress in 1976 through the Federal Land and Policy Management Act (FLPMA). The BLM manages about 10 million of those acres. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. The CDCA Plan, as amended, is based on the concepts

of multiple-use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert. The CDCA Plan provides a classification system that places BLM-administered public lands into one of four MUCs based on the sensitivity of the resources and types of uses for each geographic area. Descriptions of the MUCs applicable to the AEWP site are as follows:

- Class M: Multiple-Use Class M (Moderate Use) is based upon a controlled balance between higher-intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources which permitted uses may cause.
- Class L: Multiple-Use Class L (Limited Use) protects sensitive natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.
- Unclassified Lands: Scattered and isolated parcels of public land in the CDCA that have not been placed within multiple-use classes are "unclassified" land. These parcels will be managed on a case-by-case basis, as explained in the Land Tenure Adjustment Element of the CDCA Plan.

Those portions of the AEWP site subject to BLM jurisdiction are classified as shown in Table 3.6-1.

Table 3.6-1. BLM MUC Designations

Map Code Designation	Acreage	Percent of Total Project Site
Class M	1,689	65.2
Class L	318	12.3
Unclassified	17	0.6
Private (Kern County Jurisdiction)	568	21.9

Figure 2-4 shows the MUCs assigned to BLM-administered land in the AEWP area, as designated in the CDCA Plan.

Kern County General Plan (KCGP) Land Use Designations

The AEWP boundaries are located predominately within the KCGP with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP and Mojave Specific Plan land use designations are listed below. Interim rural community plans are put into place until a formal specific plan is adopted, so the Cache Creek Interim Rural Community Plan does not include specific land use designations. Therefore, the KCGP designations apply in areas where an interim rural community plan has been designated.

Table 3.6-2 lists the acreages of existing KCGP and Mojave Specific Plan land use designations within the AEWP boundary, as well as the designations that would be traversed by the portions of the proposed transmission line that were not previously analyzed in association with the Alta Infill II SEIR. The percentage of the AEWP site and transmission line represents the acre/miles of the total AEWP site (2,592 acres) or transmission line under County jurisdiction.

Table 3.6-2. Kern County Land Use Designations

Plan Jurisdiction	Map Code Designations	Associated General Plan Goals/Policies	Acres/Miles	Percent of Total Project Site/ Transmission Line
General Plan – Project Site	8.4 Mineral and Petroleum	1.9 Resource	63.8 acres	2.5
	8.5 Resource Management		504.2 acres	19.5
	2.4 Steep Slope	1.3 Physical and Environmental Constraints Overlay*	*437.8 acres*	—
	2.5 Flood Hazard		*8.5 acres*	—
General Plan – Transmission Line	7.3 Heavy Industrial	1.8 Industrial	1.9 miles	14.8
	8.3 Extensive Agriculture	1.9 Resource	3.3 miles	25.8
	8.5 Resource Management		2.5 miles	19.6
	4.1 Accepted County Area Plans		2 miles	15.6
	2.4 Steep Slope	1.3 Physical and Environmental Constraints Overlay*	*0.9 mile*	—
	2.5 Flood Hazard		*2.6 miles*	—
Mojave Specific Plan – Transmission Line	3.3 Other Facilities	Public Facilities	0.3 mile	2.3
	5.4 Residential – Max	Residential	0.7 mile	5.5
	5.6 Residential – Maximum 2.5		0.5 mile	3.9
	8.2 Resource Reserve	Resource	0.5 mile	3.9
	8.5 Resource Management		1 mile	7.8

Source: Kern County General Plan, 2008; Mojave Specific Plan, 2003

* General Plan Constraint Overlays (noted in italics) combine with the base land use designation; therefore, acreage is not included in the percentage of the total project site.

Kern County Zoning Designations

General provisions for the zoning areas are defined in the County Zoning Ordinance. Table 3.6-3 presents the acreages of existing zoning designations within the AEWP site boundary, as well as the designations that would be traversed by the proposed transmission line. The percentage of the project site and transmission line represents the acre/miles of the total AEWP site (2,592 acres) or transmission line under County jurisdiction.

Table 3.6-3. Kern County Zoning Districts*

	Existing Zone Classifications	Acres/Miles	Percent of Project Site/ Transmission Line
Project Site	A-1 (Limited Agriculture)	143.1 acres	5.5
	E(20) RS (Estate 20 acres, Residential Suburban Combining)	424.9 acres	16.4
Transmission Line	A-1 (Limited Agriculture)	10.2 miles	79.6
	A-1 (Limited Agriculture) with Flood Plain Secondary Combining Overlay	0.3 mile	2.3

Table 3.6-3. Kern County Zoning Districts*

Existing Zone Classifications	Acres/Miles	Percent of Project Site/ Transmission Line
E(20) (Estate 20 acres)	0.3 mile	2.3
M-3 (Heavy Industrial)	2 miles	15.6

Source: Kern County Zoning Ordinance, 2008.

3.6.2 Applicable Regulations, Plans, and Standards

3.6.2.1 Federal

Federal Land Policy and Management Act (FLPMA) of 1976

FLPMA establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy (FLPMA, 2001). The BLM is responsible for responding to requests regarding the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and takes into account the long-term needs for renewable and non-renewable resources for future generations.

California Desert Conservation Area Plan

The CDCA encompasses 25 million acres in southern California designated by Congress in 1976 through the FLPMA. The BLM manages about 10 million of those acres. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. As noted in Section 3.6.1.2 above, the CDCA Plan, as amended, is based on the concepts of multiple-use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert.

The CDCA Plan establishes four MUC designations; the MUC guidelines; and plan elements for specific resources or activities, such as motorized vehicle access, recreation, and vegetation (BLM, 1980). The MUC designations that apply to the AEWP are defined above, and an analysis of the AEWP's compliance with the MUCs is presented in Section 4.6.

California Desert Conservation Area Plan – West Mojave Plan

The BLM produced the West Mojave Plan (WMP) as an amendment to the CDCA Plan. The WMP is a federal land use plan amendment that presents a comprehensive strategy and habitat conservation plan (HCP) to conserve and protect the desert tortoise, the Mohave ground squirrel, and nearly 100 other plants and animals and the natural communities of which they are part; and provides a streamlined program for complying with the requirements of the California and federal Endangered Species Acts. The WMP includes the establishment of new Areas of Critical Environmental Concern (ACEC), ACEC boundary amendments, multiple use class changes, a management plan, and other general amendments to the existing CDCA Plan (BLM 2005).

Federal Aviation Administration, 2007

The Federal Aviation Administration (FAA) issues and enforces regulations related to air traffic control and the assignment and use of airspace. The FAA's regulations are found in the Federal Aviation Regulations (FAR). FAR Title 14, Part 77, establishes the standards for determining obstructions in navigable

airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.8 miles) of an airport.

The standards and notification requirements of FAR Title 14 Part 77 are intended to: (1) evaluate the effect of the construction or alteration of structures on airport operating procedures; (2) determine whether the construction or alteration would result in a potential hazard to air navigation; and (3) identify measures to enhance safety. The FAA requires notification through the filing of FAA Form 7460 1, Notice of Proposed Construction or Alteration, and Form 117–1, Notice of Progress of Construction or Alteration, if any of the following criteria are met due to implementation of a proposed action (Title 14 Part 77.13) (FAA, 2007):

Any construction or alteration [of a structure or object] of more than 200 feet in height above the ground level at its site

Any construction or alteration [of a structure or object] of greater height than an imaginary surface extending outward and upward at one of the following slopes:

- *100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport with at least one runway more than 3,200 feet in actual length, excluding heliports*
- *50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport specified with its longest runway no more than 3,200 feet in actual length, excluding heliports*
- *25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport*

Any proposed highway, railroad, or other traverse way for mobile objects, with a height which would exceed the standards of Part 77.13(a)(1). (2) or (3)

When requested by the FAA, any construction or alteration [of a structure or object] that would be in an instrument approach area (defined in the FAA standards governing instrument approach procedures) and available information indicates it might exceed a standard of subpart C of this Part [Part 77]

Any construction or alteration of a structure or object located on a public use airport or heliport that meets the criteria of Part 77.13 (a)(5)

3.6.2.2 State

No State regulations associated with lands and realty are applicable to the proposed project.

3.6.2.3 Local

The AEWP boundaries are located predominately within the KCGP, with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures related to public health and safety, as discussed below. Interim rural community plans are put into place until a formal specific plan is adopted; therefore, the Cache Creek Interim Rural Community Plan does not contain specific provisions for land use.

Kern County General Plan

The State of California Government Code 65300 requires County to prepare and adopt a general plan. The KCGP was recently revised and was approved on April 1, 2008. Its purpose is to give long-range guidance to County officials making decisions affecting the growth and resources of the unincorporated areas of the County. The KCGP helps to ensure that day-to-day planning and land use decisions are in conformance with the long-range program designed to protect and further the public interest. It will be periodically reviewed and updated as the goals and requirements of the community evolve and change.

Table 3.6-2, above, lists the KCGP designations for the project site and the analysis of the AEWP's consistency with applicable goals and policies set forth by the KCGP is included at the end of Section 4.6 in Table 4.6-2.

Mojave Specific Plan

The Mojave Specific Plan is a part of the KCGP and is intended to guide land use and development within the specific plan area. Three miles of the transmission line are within the boundaries of the Mojave Specific Plan. Table 3.6-2, above, lists specific plan designations for the transmission line, and Table 4.6-2 in Section 4.6 provides an analysis of the AEWP's consistency with applicable goals and policies set forth by this specific plan.

Kern County Airport Land Use Compatibility Plan

The County's Airport Land Use Compatibility Plan (ALUCP) establishes procedures and criteria by which the County can address compatibility issues when making planning decisions regarding airports and the land uses surrounding them. The southern end of Township 32, Range 35, Section 26 on the east side of the AEWP site is within Mojave Airport's Airport Influence Area. Section 4.6 provides an analysis of the AEWP's consistency with applicable goals and policies set forth by the ALUCP.

Kern County Zoning Ordinance

The County Zoning Ordinance establishes the basic regulations under which land is developed. This includes allowable uses, building setback requirements, and development standards. Pursuant to State law, the zoning ordinance must be consistent with the KCGP. Table 3.6-3, above, lists zoning designations for the AEWP site and Section 4.6 provides an analysis of the AEWP's consistency with applicable regulations and standards set forth by the Zoning Ordinance.

3.7 Livestock Grazing

The livestock grazing guidelines specified by the BLM pertain to the protection of sensitive resources, support facilities and vegetation manipulation, and are slightly different for Multiple-Use Class L and Class M lands. The Multiple Use Classes are described in Section 3.06 (Lands and Realty) of this Draft Plan Amendment (PA), Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The CDCA Plan also includes a Livestock Grazing Element, which provides more specific application of the multiple-use guidelines toward these resources.

3.7.1 Environmental Setting

3.7.1.1 Regional and Project Setting

The BLM's Warren Allotment is entirely within the Alta East Wind Project (AEWP) site (BLM, 2011a; BLM, 2011b); and the Hansen Common (BLM, 2011a; BLM, 2011c) Allotment surrounds the northern boundary of the project site, see Figure 3.7-1 in Appendix A for a map of the allotments. The Warren Allotment consists of 584 acres (Section 34) at the southwestern end of the AEWP site. The Hansen Common Allotment is approximately 72,000 acres and includes Section 28, north of SR 58, at the northern project boundary. The BLM Ridgecrest field office provides management oversight for these rangeland allotments. Per correspondence with the BLM Ridgecrest office it was determined that an Allotment Management Plan (AMP) was prepared for the Hansen Common Allotment; however, due to its small size (only one section of land), an AMP has not been prepared for the Warren Allotment. According to the BLM Allotment Master Report for the Warren Allotment, the permitted use is 55 perennial animal unit months (AUM), which is the amount of forage needed to sustain one cow, five sheep, or five goats for one month.

AMPs are developed for rangeland allotments for proper management of livestock grazing on specified public lands to meet resource conditions, sustained yield, multiple use, and economic and other objectives such as implementing grazing systems that regulate the timing and intensity of grazing. AMPs do not identify development standards or regulations. However, the BLM California State Office prepared Standards for Rangeland Health and Guidelines for Livestock Grazing Management (June 1999) to establish standards and guidelines to protect and sustain rangeland health, insofar as the standards are affected by livestock grazing practices. The fundamentals of this management guide focus on: A. properly functioning watersheds; B. ecological processes; C. water quality standards; and, D. protected species habitats. Use of the land is required to meet these Standards of Rangeland Health.

Allotment Management Status Categories set by the BLM for the Warren Allotment and the Hansen Common Allotment are Custodial (C) and Maintain (M), respectively. These management categories are defined as:

- Custodial (C) – Allotments usually consist of relatively small acreages or parcels of public land. Often intermingled with larger amounts of nonfederal lands. There should be no known resource conflicts involving use or resource conditions. Typically, opportunities for positive economic returns from public investments are limited on these lands.
- Maintain (M) – Allotments are in satisfactory resource conditions and are producing near their potential under existing management strategies. There are little or no known resource use conflicts or controversies.

In addition, the Warren and Hansen Common Allotments fall within two kinds of allotments. The two types and related details/descriptions are provided below:

1. *Section 15 Land Based Allotment Lease (Warren Rangeland Allotment).*

   Section 15 Allotments are based on land designated for grazing. If the lease is modified for another use, meaning if the proposed use of the land precludes grazing, that acreage

has to be removed from the allotment grazing lease. BLM is required to give the Rancher two years notice of this; however, the Rancher can waive that right if they choose. After the two year notice period, the Rancher has no recourse or appeal as grazing is a privilege granted by the BLM, not a right.

The grazing lease on the Warren Allotment is for perennial sheep grazing. The Warren Allotment grazing lease was issued in October 2011 and the term extends to 2/28/2019.

2. *Section 3 – Preference Based Allotment Preference/Permit (Hansen Common Rangeland Allotment)*

The Hansen Common Allotment is within a grazing district with an existing grazing permit. Section 3 Allotment grazing permits are issued by the BLM based on Preference. Preference is indicated by the number of animal unit months (AUM; the amount of forage needed to sustain one cow, five sheep, or five goats for one month) available to graze on the permit. If there is a withdrawal of land from grazing, the BLM has to determine the preference that is withdrawn.

A determination by BLM is made as to whether or not the action affects the permit/preference. There is no formal determination process; however the in general, the determination process is as follows:

- If the proposed use of the land does not preclude grazing, it doesn't affect the Ranchers use, limited to no removal of grazing occurs and no two year notice is needed.
- If it is decided by the BLM that the action would preclude enough area from grazing that it would impact the forage space for the Rancher (impact the Preference/Permit area), then the land is withdrawn as part of the grazing district and BLM is required to issue a two year notice to the Rancher of cancellation of part of the grazing permit/district.
- After the two year notice period, the Rancher has no recourse or appeal as grazing is a privilege granted by the BLM, not a right.

The grazing permit on the Hansen Common Allotment includes cattle grazing and ephemeral sheep grazing. Cattle grazing on the allotment is preference based and occurs mostly in the northern area of pine tree canyon. The non-preference based ephemeral sheep grazing occurs at the southeastern portion of the allotment paralleling US Highway 14. Infrequent cattle grazing occurs in and adjacent to Section 28 on the south side of the allotment. The Hansen Common Allotment grazing permit was issued on 1/23/2009 and the term extends from 1/1/2009 to 2/28/2018.

3.7.2 Applicable Regulations, Plans, and Standards

3.7.2.1 Federal

California Desert Conservation Area Plan

The 25 million-acre CDCA Plan Area contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. Approximately 10 million acres of the CDCA public lands are administered by the BLM.

The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of multiple-use class guidelines for a given resource and its associated activities.

The CDCA Plan includes a Grazing Element which includes the following goals:

- Use range management to maintain or improve vegetation to meet livestock needs and to meet other management objectives sit forth in the Plan;
- Continue the use of the California Desert for livestock production to contribute to satisfying the need for food and fiber from public land; and,
- Maintain good and excellent range condition and improve poor and fair range condition by one condition class, through development and implementation of feasible grazing systems or Allotment Management Plans (AMPs).

Adjust livestock use where monitoring data indicate changes are necessary to meet resource objectives.

Taylor Grazing Act (1934)

The Taylor Grazing Act of 1934 (43 USC 315) was intended to regulate grazing on public lands (excluding Alaska); prevent deterioration of rangeland by overgrazing; and provide for long-term management of grazing districts for the benefit of the livestock industry that utilized public rangelands.

Public Rangelands Improvement Act (1978)

Establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; and continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.

Federal Land Policy and Management Act (FLMPA)

The FLPMA establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy (FLPMA, 2001). BLM is responsible for responding to requests regarding the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and takes into account the long-term needs for renewable and non-renewable resources for future generations.

3.7.2.2 State

Livestock Grazing refers specifically to the BLM designations and are not relevant to State government. State grazing designations, under the Department of Conservation, are addressed in the Special Designations setting and analysis (Sections 3.15 and 4.15).

3.7.2.3 Kern County

Livestock Grazing specifically refers to BLM designations and are not applicable to the County. However, impacts associated with grazing activities are relevant to the County since the Zoning Ordinance includes an Estray Ordinance. Therefore, the issue is addressed along with the County's agricultural resources impact thresholds in Section 3.15, and the impact analysis is provided in Section 4.15.

3.8 Mineral Resources

This section discusses mineral resources relevant to the proposed Alta East Wind Project (AEWP). The study area addressed in this section includes lands that may be affected directly and/or indirectly by construction and operation of the AEWP. This section also describes the environmental and regulatory settings in relation to mineral resources. California Department of Conservation and Kern County publications and maps were used in preparation of this section.

The analysis in this section utilizes, in part, the *Alta East Wind Project – Geological Resources Technical Memorandum*, prepared by CH2MHill (CH2MHill, 2010). The complete text of this Geotechnical Report is provided as Appendix N of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR).

3.8.1 Environmental Setting

Kern County contains numerous mining operations that extract diverse materials, including sand and gravel, stone, gold, dimensional stone, limestone, clay, shale, gypsum, pumice, decorative rock, silica, and specialty sand. Mineral resources are likely to occur within the project area given its designation under the Kern County General Plan (KCGP) as Mineral and Petroleum.

The KCGP designates areas as Mineral and Petroleum (Map Code 8.4) that contain productive or potentially productive petroleum, natural gas, and/or geothermal resources, and/or mineral deposits of regional and Statewide significance. Uses of these areas are limited to activities directly associated with resource extraction. The Land Use, Open Space, and Conservation Element of the KCGP specifies that uses of areas designated as Mineral and Petroleum include but are not limited to the following: mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.

3.8.1.1 Regional

The BLM groups minerals on federal lands into three distinct categories: (1) Locatable resources (subject to the General Mining Law of 1872, as amended); (2) Leasable resources (subject to various Mineral Leasing Acts); and (3) Salable resources (subject to mineral materials disposed of under the Materials Act of 1947, as amended) (BLM, 2010a). Locatable minerals include hardrock resources that are typically metals with a unique or special use, such as gold and silver; leasable minerals include those which are typically found in bedded deposits, such as oil, gas, and geothermal resources; and salable minerals include common variety of materials such as sand, stone, and gravel (BLM, 2010b). These minerals categories are further discussed below with regards to the AEWP site.

The Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), provides data to describe metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references (MRDS, 2011a). The AEWP area is located within the Bakersfield 7.5” USGS Quadrangle, and within the Tehachapi area of this Quadrangle; the site itself is within the Mojave Subarea, with the Monolith Subarea adjacent to the west and the Cache Peak Subarea adjacent to the north. The MRDS online database was reviewed for the vicinity of the proposed AEWP site, specifically for the geographic areas mentioned above, and results of this review are provided below in Table 3.8-1 and shown in Figure 3.8-1.

Table 3.8-1. Mineral Resources in the Regional Vicinity of the Alta East Wind Project Site

MRDS ID*	Site Name	Map ID*	Primary Commodity	Operation Type	Status
	Mojave Subarea (Project Site)				
10034172	Four Star	37	Gold, Silver	Unknown	Past Producer
10048683	Gum Tree Mine	28	Gold	Unknown	Past Producer
10048734	Pride of Mojave Mine	38	Gold	Unknown	Past Producer
10048774	Yellow Dog Mine	39	Gold	Unknown	Past Producer
10048775	Yellow Dog Extension	1	Gold	Unknown	Past Producer
10076722	Gum Tree Mine	40	Gold	Unknown	Producer
10076757	Pride of Mojave	29	Gold	Unknown	Producer
10076781	Whitmore Mine	41	Gold	Unknown	Producer
10076782	Yellow Dog Mine	2	Gold, Silver	Unknown	Producer
10098347	Exposed Treasure Mine	30	Gold, Silver	Unknown	Past Producer
10104172	Whitmore Mine	42	Gold, Silver	Unknown	Past Producer
10110762	Standard Group	3	Gold	Unknown	Producer
10114784	Victory	4	Gold	Underground	Plant
10139233	Tehachapi Clay	15	Bentonite	Surface	Past Producer
10139293	Unnamed Quarry	31	Sand and Gravel	Surface	Past Producer
10163259	Exposed Treasure Mine	16	Gold	Underground	Past Producer
10163278	Broken Stone #4	5	Stone, Crushed/Broken	Unknown	Occurrence
10163519	Unnamed Uranium Occurrence	32	Uranium	Unknown	Occurrence
10163543	Unnamed Quarry	18	Sand and Gravel	Surface	Past Producer
10163636	Unnamed Pit	33	Stone, Crushed/Broken	Surface	Past Producer
10187666	Standard Hill Mine	6	Gold	Surface	Past Producer
10188025	Emerald Queen Prospect	44	Uranium	Unknown	Occurrence
10188137	Yellow Rover Mine	19	Gold	Underground	Past Producer
10188235	Caltrans #256	45	Sand and Gravel	Unknown	Unknown
10211806	Whitmore Mine	35	Gold	Underground	Past Producer
10211911	Desert Queen	47	Gold	Underground	Past Producer
10211938	Borrow Pit	20	Sand and Gravel	Surface	Past Producer
10235985	Pride of Mojave Mine	48	Gold	Underground	Past Producer
10236037	Yellow Dog Mine	49	Gold	Underground	Past Producer
10236441	Unnamed Feldspar Occurrence	50	Feldspar	Unknown	Occurrence
10236484	Bluebird	7	Gold	Underground	Past Producer
10260424	Caltrans #251	22	Sand and Gravel	Unknown	Unknown
10261012	Gum Tree Mine	51	Gold	Underground	Past Producer
10261101	Unnamed Clay Deposit	52	Bentonite	Surface	Prospect
10285062	Unnamed Quarry	9	Stone, Crushed/Broken	Surface	Past Producer
10285309	Gold Coin Claim	23	Gold	Underground	Prospect
10304838	Mojave Pit	25	Sand and Gravel	Surface	Producer
	Monolith Subarea (west of Project site)				
10035219	Esperanza	26	N/A	Unknown	Occurrence
10115389	Cameron Lake	11	Sodium	Surface	Past Producer
10138869	Snowball Deposit	12	Limestone	Unknown	Occurrence
10138989	Cameron Siding	13	Gemstone	Unknown	Occurrence

Table 3.8-1. Mineral Resources in the Regional Vicinity of the Alta East Wind Project Site

MRDS ID*	Site Name	Map ID*	Primary Commodity	Operation Type	Status
10138993	Monolith Cement Plant	14	Calcium	Processing Plant	Producer
10163347	Monolith Limestone Quarry	17	Limestone	Surface	Past Producer
10188388	Section 13-24 Quarry	46	Stone, Crushed/Broken	Surface	Past Producer
10236526	California Portland Cement Co.	21	Limestone	Surface	Past Producer
10260978	Leona Tungsten Mine	8	Tungsten	Underground	Producer
10285255	Esperanza Prospect	10	Tungsten	Surface	Prospect
10285324	Monolith Portland Cement Co.	24	Limestone	Surface	Producer
	Cache Peak Subarea (north of Project site)				
10035220	Miller Prospect	27	Tungsten	Unknown	Occurrence
10115277	Hansen Dg Pit	43	Stone, Crushed/Broken	Surface	Past Producer
10188322	Miller Prospect	34	Tungsten	Unknown	Prospect
10211879	Cloudburst	36	Antimony	Underground	Prospect

Notes: MRDS = Mineral Resource Data System
Map ID=Corresponds to the number in Figure 3.8-1
Source: MRDS, 2011a; MRDS, 2011b; MRDS, 2011c

As indicated by Table 3.8-1, MRDS ID 10163519 is labeled Unnamed Uranium Occurrence, which is located about half a mile east of the southeast boundary of the project site within the adjacent Alta Infill II Wind Energy Project area. The site location is approximately 70 feet west of the Los Angeles Department of Water and Power (LADWP) property line, and approximately 170 feet west of the LADWP aqueduct. The property is currently under Terra-Gen land control, and was rezoned for wind energy development as part of the Alta Infill II Wind Energy Project approval process in 2011. The eastern edge of this property is too close to the airport to site turbines, as the height of a turbine would exceed FAA limits. (CH2MHill, 2012)

The USGS defines "occurrence" as an "[o]re mineralization in outcrop, shallow pit or pits, or isolated drill hole. Grade, tonnage, and extent of mineralization essentially unknown. No production has taken place and there has been no or little activity since discovery with the possible exception of routine claim maintenance" (USGS, 2012a). In addition, the USGS describes the formation as an alluvial deposit containing non-commercial levels of uranium. Aerial survey information places the spot in a creek bed. The potential for radioactivity is discussed in Section 4.8 (Mineral Resources).

3.8.1.2 Local

As indicated by Table 3.8-1, former, current, and prospective mining operations are in the vicinity of the AEWP site. A detailed analysis for these mines was performed in March 2009 for the Golden Queen Mining Co. and documented in the SRK Consulting report for the Soledad Mountain Project. The Kern County Engineering and Survey Services Department and the California Division of Mines and Geology indicate no active or abandoned mines on the AEWP site.

In addition, as mentioned above, the BLM groups minerals on federal lands into three distinct categories, each of which is addressed below for the AEWP site.

- **Locatable Minerals.** There are no active mining claims for locatable minerals within the proposed AEWP site and there is no locatable minerals activity within the boundaries of the proposed AEWP site. Based on the geological environment and historical trends, the potential for occurrence of locatable minerals is low in this area.

- **Leasable Minerals.** The State of California Division of Oil, Gas and Geothermal Resources maps show that no oil, gas, or geothermal fields are located in the vicinity of the AEWP site.
- **Saleable Minerals / Mineral Materials.** Sand and gravel deposits are common throughout Kern County, including on the proposed AEWP site and vicinity.

Several former or currently operating mines are in the project vicinity. An inactive quarry was identified adjacent to and north of Section 28 of the AEWP site. The former quarry was used for mine aggregate materials to surface roads, etc. The lack of identified concerns related to mining on the project site make it likely that the area of "disturbed land" is associated with earthworks operations for the former aqueduct channel that runs through the southeast corner of Section 26. No evidence of mine tailings or waste was observed on the AEWP site during reconnaissance (CH2MHILL, 2010).

3.8.2 Applicable Regulations, Plans, and Standards

3.8.2.1 Federal

Mining and Mineral Policy Act of 1970. This act declared that the federal government policy is to encourage private enterprise in the development of a sound and stable domestic mineral industry and in orderly and economic development of mineral resources, research, and reclamation methods.

California Desert Conservation Area Plan. The California Desert Conservation Area (CDCA) Plan defines multiple-use classes for BLM-managed lands within the CDCA, which includes land area encompassing the proposed Alta East Wind Project site. With respect to geological resources, the CDCA Plan aims to maintain the availability of mineral resources on public lands for exploration and development.

3.8.2.2 State

State Surface Mining and Reclamation Act (SMARA) of 1975. The Surface Mining and Reclamation Act of 1975 (SMARA) mandated the initiation by the State Geologist of mineral land classification in order to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area, using the California Mineral Land Classification System. (DOC, 2000)

The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or of regional significance are available when needed. The SMGB, based on recommendations from the State Geologist and public input, prioritizes areas to be classified and/or designated. Areas which are generally given highest priority are those areas within the State which are subject to urban expansion or other irreversible land uses which would preclude mineral extraction. (DOC, 2000)

The State Geologist has classified 2,971 square miles of land in Kern County as Mineral Resource Zones (MRZs) of varying significance. Significant mineral resources located in southeastern Kern County include borates, limestone, gold, and dimension stone. MRZs are classified as follows (Koehler, 1999):

MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. Land included in MRZ-2a is of prime importance because it contains known economic mineral deposits.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain inferred mineral resources

as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.

MRZ-3a: Areas containing known mineral occurrences of undetermined economic significance. Further exploration could result in reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

MRZ-3b: Areas containing inferred mineral occurrences of undetermined economic significance. Further exploration could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

3.8.2.3 Local – Kern County

The project boundaries are located predominately within the Kern County General Plan (KCGP) with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Mojave Specific Plan and the Cache Creek Interim Rural Community Plan do not contain policies specific to mineral resources. Therefore, the project would be subject to the policies and measures of the KCGP as listed below.

Kern County General Plan

The Conservation and Open Space Element of the Kern County General Plan contains a goal to preserve mineral resources in the County (KCPD, 2009):

Chapter 1. Land Use, Open Space, and Conservation Element

Section 1.9 Resource

Goals

- **Goal 1.** To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.
- **Goal 2.** To protect areas of important mineral, petroleum, and agricultural resource potential for future use.
- **Goal 3.** To ensure that the development of resource areas minimizes effects on neighboring resource lands.
- **Goal 4.** Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.
- **Goal 6.** Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

- **Policy 14.** Emphasize conservation and development of identified mineral deposits.
- **Policy 17.** Lands classified as MRZ-2, as designated by the State of California, should be protected from encroachment of incompatible land uses.
- **Policy 25.** Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.

Implementation Measures

- **Implementation Measure H.** Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.
- **Implementation Measure K.** Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

Kern County Zoning Ordinance

The WE Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). None of the provisions of Chapter 19.64 apply to mineral resources issues related to the AEWP.

3.9 Noise

The discussion in this section explains how sound is characterized, describes the existing noise environment on and near the Alta East Wind Project (AEWP) site, provides information about how vibration is characterized, and summarizes relevant regulations and standards related to noise and vibration. Baseline noise conditions and information contained within this section was provided by the *Alta East Noise Study*, May 2011, prepared by WZI Inc., which is included as Appendix F of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) and incorporated by reference herein (WZI, 2011).

3.9.1 Environmental Setting

Terminology

The assessment of noise impacts uses specific terminology and fundamental descriptors not commonly used in everyday conversation. Therefore, in order to assist in a thorough understanding of the subsequent analysis, these terms are discussed in this subsection and are summarized in Table 3.9-1.

Acoustics is the study of sound, and noise is defined as unwanted sound.

Airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure creating a sound wave.

The **pitch** or loudness of sound determines whether a sound is of a pleasant or objectionable nature. Pitch, which is the height or depth of a tone or sound, is louder to humans when it is high pitched versus low pitched. The loudness of a sound is determined by a combination of the intensity of the sound waves with the reception characteristics of the ear.

A **decibel (dB)** is a unit used to describe the amplitude of sound, and sound levels are calculated on a logarithmic, not linear, basis. The lowest sound level that an unimpaired human ear can hear is described as zero on the decibel scale. Due to the logarithmic nature of measuring sound levels on the decibel scale, a 10-dB increase represents a tenfold increase in acoustic energy; whereas, a 20-dB increase represents a hundredfold increase in acoustic energy. Because a relationship exists between acoustic energy and intensity, each 10-dB increase in sound level can have an approximate doubling effect on loudness as perceived by the human ear.

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

Table 3.9-1. Summary of Acoustical Terms

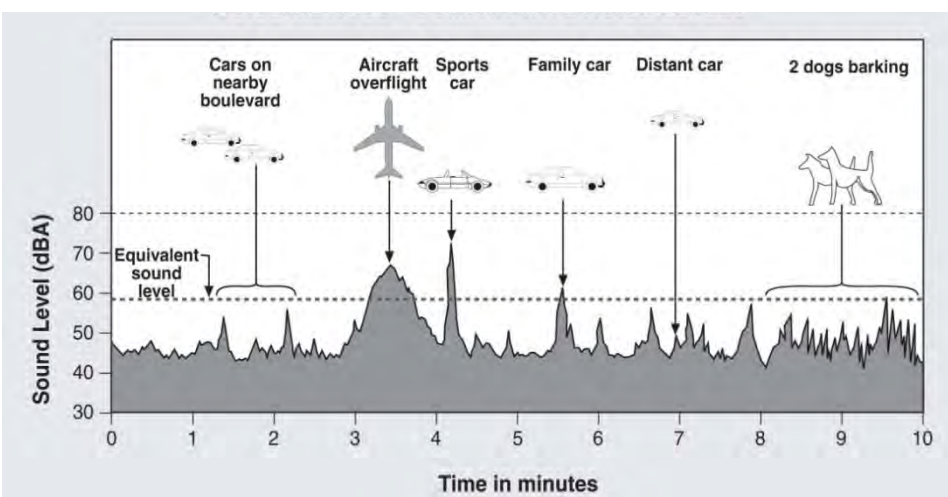
Term	Definition
Ambient Noise Level	The composite noise from all sources resulting in the normal, existing level of environmental noise at a given location. The ambient level is typically defined by the Leq level.
Background Noise Level	The underlying ever-present lower level noise that remains in the absence of intrusive or intermittent sounds. Distant sources, such as traffic, typically makeup the background. The background level is generally defined by the L90 percentile noise level.
Intrusive	Noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal content, the prevailing ambient noise level, and the sensitivity of the receiver. The intrusive level is generally defined by the L10 percentile noise level.

Table 3.9-1. Summary of Acoustical Terms

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
A-Weighted Sound Level (dBA)	The sound level in decibels as measured on a sound level meter using the A weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent Noise Level (Leq)	The average A-weighted noise level, on an equal energy basis, during the measurement period.
Percentile Noise Level (Ln)	The noise level exceeded during 'n' percent of the measurement period, where 'n' is a number between 0 and 100 (e.g., L90)
Day-Night Average Level (Ldn)	The energy average A-weighted noise level during a 24-hour day, obtained after the addition of 10 decibels between the hours of 10:00 p.m. and 7:00 a.m.
Community Noise Equivalent Level (CNEL)	Represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for people's lower tolerance of noise during the evening and nighttime hours. Because community receptors are considered to be more sensitive to unwanted noise intrusion during the evening and night, an artificial decibel increment is added to quiet-time noise levels. Sound levels are increased by 5 dBA during the evening, from 7:00 p.m. to 10:00 p.m. and by 10 dBA during the nighttime, from 10:00 p.m. to 7:00 a.m.
Hertz (Hz)	A unit of frequency. The number of times per second that the sine wave of sound repeats itself, or that the sine wave of a vibrating object repeats itself.

One way to describe noise is to measure the **maximum sound level (L_{max})** (as represented by the 70 dBA noise level from the sports car in the example shown in Table 3.9-2). The L_{max} measurement does not account for the duration of the sound. Studies have shown that human response to noise involves the maximum level and its duration. For example, the aircraft in this case is not as loud as the sports car, but the aircraft sound lasts longer. For most people, the aircraft overflight would be more annoying than the shorter duration sports car event. Thus, the maximum sound level alone is not sufficient to predict reaction to environmental noise.

Table 3.9-2. Noise Metrics - Comparative Noise Levels



A-weighted sound levels can be measured or presented as **equivalent sound pressure level (L_{eq})**. This is defined as the average noise level, on an equal-energy basis for a stated period of time and is commonly used to measure steady-state sound or noise that is usually dominant. Statistical measurements are

typically denoted by L_n, where 'n' represents the percentile of time the sound level is exceeded. The measurement of L_{90} represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, the L_{10} represents the noise level exceeded for 10 percent of the measurement period. As discussed below in Section 3.9.2, Regulatory Setting, Kern County uses the L_8 metric in its Wind Energy Ordinance policy requirements.

Human response to daytime and nighttime noise has been observed to vary. During the evening and nighttime, exterior background noises are generally lower than daytime levels; however, most household noise also decreases at night, and exterior noise becomes more noticeable. Furthermore, most people sleep at night and are sensitive to intrusive noises. To account for human sensitivity to evening and nighttime noise levels, the **Day-Night Level (L_{dn})** was developed. The L_{dn} is a noise index that accounts for the greater annoyance attributed to noise during the evening and nighttime hours.

L_{dn} values are calculated by averaging hourly L_{eq} sound levels for a 24-hour period and applying weighting factors to evening and nighttime L_{eq} values. The weighting factor, which reflects the increased sensitivity to noise during nighttime hours, is added to each hourly L_{eq} sound level before the 24-hour L_{dn} is calculated. For the purposes of assessing noise, the 24-hour day is divided into two time periods, with the following weightings:

Daytime: 7:00 a.m. to 10:00 p.m. (15 hours), weighting factor of 0 dB

Nighttime: 10:00 p.m. to 7:00 a.m. (9 hours), weighting factor of 10 dB

The time periods are then averaged (on an energy basis) to compute the overall L_{dn} value. For a continuous noise source, the L_{dn} value can be computed by adding 6.4 dB to the overall 24-hour noise level (L_{eq}). For example, if the expected continuous noise level from a power plant were 60.0 dBA L_{eq} for every hour, the resulting L_{dn} from the plant would be 66.4 dBA L_{dn}.

The community noise equivalent level (CNEL) metric is similar to the L_{dn} but with an additional 5-dB weighting factor between 7:00 p.m. and 10:00 p.m. CNEL and L_{dn} measures are frequently used interchangeably. For a continuous noise source, the CNEL value can be computed by adding 6.7 dB to the overall 24-hour noise level (L_{eq}), meaning that the plant in the previous example would be 66.7 dBA CNEL.

The effects of noise on people can be grouped into three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction
- Interference with activities such as speech, sleep, learning
- Physiological effects such as startling and hearing loss

In most cases, environmental noise produces effects in the first two categories of subjective effects and interference with activities only; however, workers in industrial plants might experience physiological effects of noise. No satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is due primarily to the wide variation in individual thresholds of annoyance and habituation to noise. Thus, an important way of determining a person's subjective reaction to a new noise is by comparison with the existing or "ambient" environment to which that person has adapted. In general, the more the level or the tonal (frequency) variations of a noise exceed the existing ambient noise level or tonal quality, the less acceptable the new noise will be, as judged by the exposed individual. When comparing sound levels from similar sources (for example, changes in traffic noise levels), a 3-dBA change is considered to be a just-perceivable difference; 5 dBA is clearly perceivable, and 10 dBA is considered a doubling in loudness.

General Information on Noise

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound, and the dB scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated. Table 3.9-2 shows some representative noise sources and their corresponding noise levels in dBA.

Attenuation of Noise. Line sources of noise, such as roadway traffic, attenuate (lessen) at a rate of 3.0 dBA to 4.5 dBA per doubling of distance from the source, based on the inverse square law and the equation for cylindrical spreading of noise waves over hard and soft surfaces. Point sources of noise, including stationary and idle mobile sources such as idling vehicles or onsite construction equipment, attenuate at a rate of 6.0 dBA to 7.5 dBA per doubling of distance from the source, based on the inverse square law and the equations for spherical spreading of noise waves over hard and soft surfaces. For the purposes of this analysis, it is assumed that noise from line and point sources to a distance of 200 feet attenuates at rates of between 3.0 dBA and 6.0 dBA per doubling of distance, and the noise from line and point sources to a distance longer than 200 feet attenuates at a rate of 4.5 dBA to 7.5 dBA per doubling of distance to account for the absorption of noise waves due to ground surfaces such as soft dirt, grass, bushes, and intervening structures (Caltrans, 1998).

L_{EQ}, L_1, and L_8. Time variations in noise exposure are typically expressed in terms of a steady-state energy level (called "L_{eq}") that represents the acoustical energy of a given measurement. L_{eq} is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period). L_n represents the sound pressure level exceeded for 'N percent' of the time during a noise measurement. The typical values are L_5, L_{10}, L_{50} and L_{90}. L_{50} represents the median value, while L_0 represents the peak value. Kern County uses L_8 in its Wind Energy requirements. The L_{eq}, L_1, L_8 and the other statistical descriptors for noise used here are defined in terms of dBA.

Based on the Kern County WE Combining District development standards and conditions (as discussed below in Section 3.9.2.3), low frequency L_8 noise data is presented to conservatively show low frequency ambient noise, as L_8 data will return higher values as opposed to L_{eq}.

Health Effects of Environmental Noise

The importance of noise to receptors depends on both time and context. The World Health Organization (WHO) is perhaps the best source of current knowledge regarding health impacts. According to WHO, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA or when intermittent interior noise levels reach 45 dBA, particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the WHO criteria suggest that exterior continuous (ambient) nighttime noise levels should be 45 dBA or below, and short-term events should not generate noise in excess of 60 dBA. WHO also notes that maintaining noise levels within the

recommended levels during the first part of the night is believed to be effective for the ability to fall asleep (WHO, 1999).

Other potential health effects of noise identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (generally after long-term occupational exposure, although also for shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA, or moderately annoyed with noise levels below 50 dBA. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels, if they occur at night, can disturb sleep.

General Information on Wind Turbine Noise

Earlier wind turbines were generally downwind devices generating low-frequency noise; however, modern wind turbines have the rotor blades upwind and the noise is typically broadband in nature (Pedersen and Waye, 2004). An upwind turbine generates two main types of noise sources: mechanical noise and aerodynamic noise. Mechanical noise is mainly generated from rotating components in the nacelle, including the gearbox and generator, and to a lesser extent, cooling fans, pumps, and compressors, and may contain discrete tone components known to be more annoying than noise without tones (Pedersen and Waye, 2004). Aerodynamic noise from wind turbines has a broadband character. It originates mainly from the flow of air over the turbine blades; therefore, the sound pressure levels (SPLs) increase with tip speed. Aerodynamic noise is typically the dominant component of wind turbine noise, as manufacturers have been able to reduce the mechanical noise to a level below the aerodynamic noise. Typical sound power levels of a modern wind turbine range from 98 to 104 dBA at a wind speed of 8 meters/second (m/s), which result in 33 to 44 dBA at a dwelling 1,640 feet (500 meters) away, although the actual dBA depends on meteorological and ground conditions (Pederson and Waye, 2007).

International field studies of annoyance from wind turbines have generally found a weak relationship between annoyance and the equivalent A-weighted SPL (Pedersen and Waye, 2004). Different sound properties, which are not fully described by the equivalent A-weighted level, are of importance for perception and annoyance for wind turbine noise. Support for such a hypothesis was given in an experimental study where reported perception and annoyance for five recorded wind turbine noises were different, although the equivalent A-weighted SPL were the same (Pedersen and Waye, 2004). The results from that study and subsequent experiences suggest that the presence of sound characteristics subjectively described as lapping, swishing, and whistling were responsible for the differences in perception and annoyance between the sounds (Pedersen and Waye, 2004). These sound characteristics affect perception and annoyance, especially at low background levels.

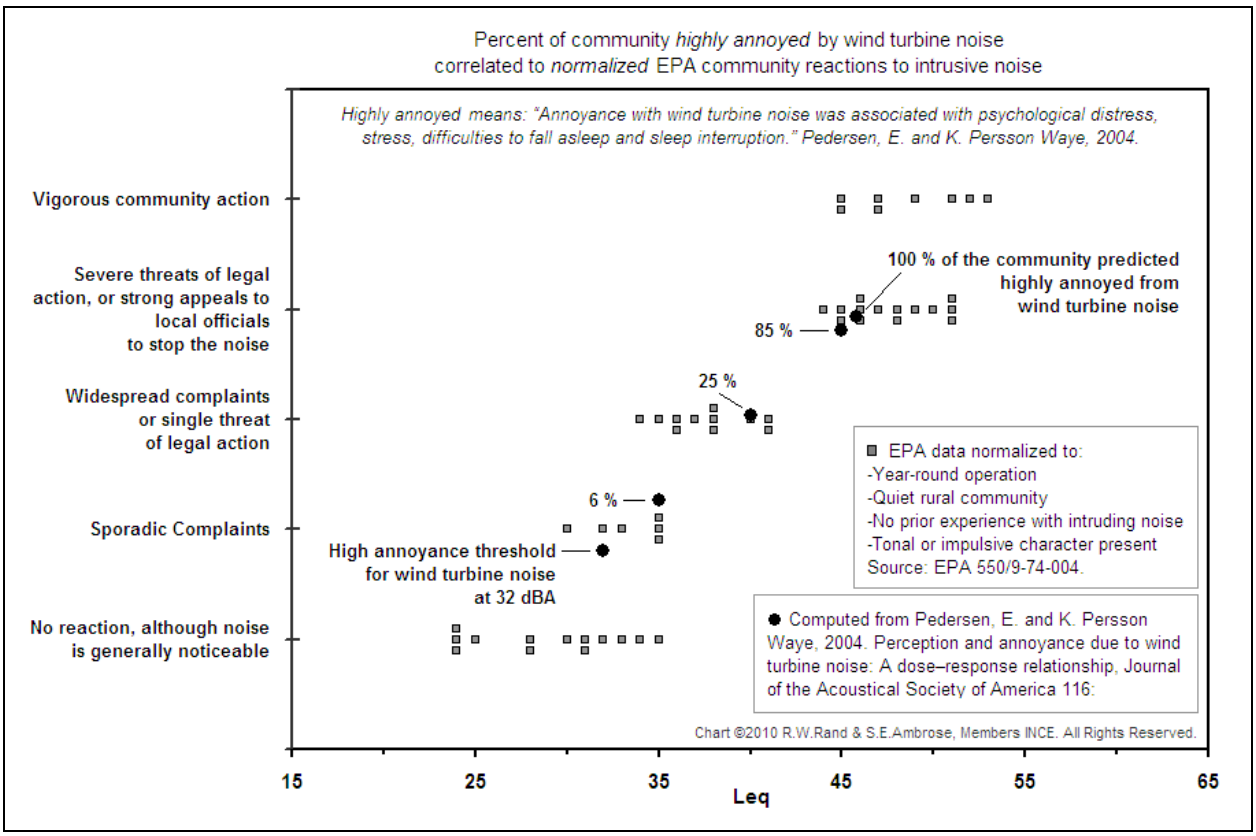
Wind-generated noise may mask the perception of wind turbine noise; however, most of the wind turbines operating today have a stable rotor speed where the rotor blades generate aerodynamic noise even if the wind speed is slow and the ambient noise is low (Pedersen and Waye, 2004). Furthermore, noise from wind turbines comprises modulations with frequency that corresponds to the blade passage frequency and may not be masked by ambient noise in rural areas (Pedersen and Waye, 2004).

A series of surveys around commercial wind facilities in Scandinavia were conducted in recent years to understand the effects of wind farm noise on local residences. The first survey was done in Sweden in 2000 with 351 people located in a rural area participating (Pedersen and Waye, 2004); the second in Sweden in 2005 with 754 people participating mostly located in a suburban area (Pedersen and Waye, 2007); and the third survey in the Netherlands in 2007 with 725 people in a mostly rural area participating (Pederson et al., 2009). In these surveys the wind farms were generally comprised of smaller turbines in the 500-800 kW range, 131 to 197 feet (40-60 meters) tall. Based on the results of all three Scandinavian

studies one clear pattern emerges: annoyance is notably higher in rural settings than in more built up areas (Cummings, 2010). Above 40 dBA "very" or "rather" annoyed increases to 25 percent of the rural population, whereas at 35-40 dBA annoyance drops to 15 to 20 percent. "Slightly" annoyed generally doubles the percentages at 30-40 dBA (Cummings, 2010). Moderate wind farm noise seems to trigger more than twice the annoyance cause by other typical noise sources (Cummings, 2010). However, there are factors to consider in these annoyance trends. Annoyance does not imply constant plague; for many people the annoyance is occasional and temporary. Of the 5 to 40 percent who reported annoyance at various sound exposures, half were disturbed just once or twice a week; a quarter were disturbed daily or nearly daily; roughly half were only bothered outside, the other half were also bothered inside; and a third or less of those annoyed report physical/health effects including sleep disruption (Cummings, 2010).

Community noise studies have shown that public annoyance increases substantially when the noise source has unpredictable variability and usual sounds. The USEPA's 1974 "Levels Document" (USEPA, 1974) presents a community reaction prediction methodology, which includes annoyance correction factors for seasonal operation, background sound level, and prior experience with the noise and tone. Utilizing this methodology, correction factors would be applied to the measured Ldn, including 0 dB for summer or year-round operation, +10 dB for quiet suburban or rural community, +5 dB for no prior experience with the intruding noise, and +5 dB for having a tonal or impulsive sound character (USEPA, 1974). Figure 3.9-1 displays a graph showing normalized EPA community reactions. This graph includes the results of independent wind turbine annoyance research by Pedersen and Waye in 2004 (Pedersen and Waye, 2004). Figure 3.9-1 clearly shows a predictable adverse community response for wind turbine noise levels above 32 dBA (Ambrose and Rand, 2010).

Figure 3.9-1. Percent of Community Highly Annoyed by Wind Turbine Noise



Wind turbine noise levels below 35 dBA may be audible but will result in community reactions ranging from "no reaction, although noise is generally noticeable" to "sporadic complaints"; whereas from 35-45 dBA, there is a predicted adverse community response ranging from "widespread complaints or single threat of legal action" to "severe threats of legal action or strong appeals to local officials to stop the noise" (Ambrose and Rand, 2010). Similarly, the Pedersen and Waye 2004 data predicts 6 to 85 percent of the community will be highly annoyed, with the associated adverse health effects of "psychological distress, stress, difficulties to fall asleep and sleep interruption." Wind turbine noise levels higher than 45 dBA will result in the highest negative community response of "vigorous community action." The Pedersen and Waye 2004 data predict "100 percent of the community highly annoyed from wind turbine noise" with the associated adverse health effects already noted. To account for the noise level variability and tonal sound content in wind turbine noise, a limit of 35 dBA would be consistent with the EPA noise level prediction for no more than "sporadic complaints" and, the Pedersen and Waye prediction for community reaction would be reduced to just above the "high annoyance threshold for wind turbine noise" (Ambrose and Rand, 2010).

In general, the current understanding of wind turbine noise is that the vast majority of wind farm noise issues occur within a half-mile (sometimes more), although even in this area, half to two-thirds of residents are either totally or usually unbothered (Cummings, 2010). In especially quiet rural areas with residents located within a half-mile, noise issues often become more than rare exceptions and fairly often affect a third to half of this nearby population (Cummings, 2010). Very few noise issues occur beyond three-quarters of a mile (Cummings, 2010).

General Information on Vibration

Vibration is a phenomenon related to noise, where common sources include trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operating heavy earth-moving equipment (FTA, 2006). Vibration is defined as the mechanical motion of earth or ground, building, or other type of structure, induced by the operation of any mechanical device or equipment located upon or affixed thereto. Vibration generally results in an oscillatory motion in terms of the displacement, velocity, or acceleration of the ground- or structure(s) that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration.

The groundborne energy of vibration has the potential to cause structural damage and annoyance; it can be felt outdoors, but the perceived intensity of vibration effects are much greater indoors due to the shaking of structures. Several land uses are sensitive to vibrations, and include hospitals, libraries, residential areas, schools, and churches. Vibration-sensitive uses include research and manufacturing where vibration-sensitive equipment is used (e.g., electron microscopes and high resolution lithographic equipment), concert halls, TV recording studios, theaters, as well as cultural and historic resources. For residential uses, the background vibration velocity level is usually 50 VdB or lower, which is well below the 65 VdB threshold of perception for humans (FTA, 2006). Although the perceptibility threshold is 65 VdB, human response to vibration is not usually significant unless the vibration exceeds 70 VdB (FTA, 2006). Sources such as buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps in the road (FTA, 2006). If there is unusually rough road, wheel flats, geologic conditions that promote efficient propagation of vibration, or vehicles with very stiff suspension system, the vibration levels from any source can be 10 decibels higher than typical (FTA, 2006). Typically, groundborne vibration generated by heavy equipment or traffic on rough roads attenuates rapidly with distance from the source of the

vibration so that potential impact areas are usually confined within short distances (i.e., 200 feet or less) from the source (FTA, 2006).

Typical levels of ground-borne vibration are listed in Table 3.9-3, below. The vibration motion normally does not provoke the same adverse human reactions as noise unless there is an effect associated with the shaking of the building. In addition, the vibration noise can only occur inside buildings. Similar to the propagation of noise, vibration propagated from the source to the receptor depends on the receiving building (i.e., the weight of the building), soil conditions, layering of the soils, the depth of groundwater table, etc.

Table 3.9-3. Typical Levels of Ground-Borne Vibration

Response	Velocity Level [a]	Typical Sources (At 50 feet)
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks such as reading a video display terminal (VDT) screen	90	Bulldozers and other heavy tracked construction equipment
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, frequent events	70	High speed rail, typical
Approximate threshold for human perception	60	Bus or truck, typical
None	50	Typical background vibration

Source: Sapphos Environmental, Inc. May 2011

a. Root mean square (RMS) Vibration Velocity Level in VdB relative to 10-6 inches/second.

3.10.1.1 Environmental Setting

Noise Sensitive Land Uses

Sensitive receptors proximate to the AEWP area include two residential developments, referred to herein as North Residential Area and South Residential Area, shown on Figure 3.9-2 in Appendix A.

There are a number of scattered residences within the North Residential Area, the closest of which are four homes situated along the east side of Wildflower Canyon Road immediately adjacent to the eastern boundary of the AEWP site located north of State Route 58. These structures are located about 100 feet outside the AEWP boundary. The remaining eight residences are located east of these properties along a series of small residential streets off the Pony Express Road.

The South Residential Area contains scattered residences along Center Road, Starlight Road, and Arroyo Avenue. The nearest residence to the AEWP site is located on Center Road, approximately 1,300 feet of the southeasternmost tip of the AEWP boundary.

Existing Noise Environment

As part of the noise technical study prepared for the AEWP, continuous unattended long-term (24-hour or longer duration) ambient noise surveys were conducted at three representative locations (shown on Figure 3.9-2 in Appendix A) to assess the existing ambient noise levels at receptor locations nearest the AEWP area. A summary of noise data gathered during the long-term ambient noise measurements is presented in Table 3.9-2.

Table 3.9-4. Ambient Noise Levels of AEWP Area

Location No.	Description	Residential Area	L_1 (dBA)	$L_{8.3}$ (dBA)
1	Pony Express Road at Wildflower Canyon Road	North	53	49
2	Rockhouse Road at Wildflower Canyon Road	North	56	52
3	60th Avenue West at Center Road	South	65	61

Source: WZI, 2011

North Residential Area. Monitoring Location #1 (taken 2,200 feet to the north of State Route 58) shows a more typical regional background and is considered to be representative for ambient noise conditions along Pony Express Road. Monitoring Location #3 (350 feet north of State Route 58) shows the expected combined effect of both State Route (SR) 58 and adjacent Union Pacific Railroad line use. The ambient noise conditions at Monitoring Location #3 are considered applicable to receptors along Rockhouse Road. Depending on distance from SR 58, the background for receptors along the north-south street segments extending between Rock House Road and Pony Express Road (i.e., Wild Flower Road, Luna Drive, Lera Lane, Quail Canyon Road, Dove Lane, Piute Pass and West Avenue) range from L_1 (65 dBA) and L_8 (61 dBA) to L_1 (53 dBA) and L_8 (49 dBA). The portion of Piute Pass (approximately 700 feet north of SR 58) running parallel to SR 58 has L_1 and L_8 ambient levels of 60 dBA and 56 dBA, respectively**.** Refer to Appendix F for full details on the ambient noise readings conducted for the AEWP.

South Residential Area. Monitoring Location #2 shows the area-wide noise levels for the South Residential Area bounded by Arroyo Road to the South, 50th Street to the East and 60th Street to the West. The L_1 and L_8 background level for all receptors on road segments lying within these bounds is considered to be 56 dBA and 52 dBA, respectively. The empirical L_8 values ranged from 49 to 61 dBA. The levels are defined by the wind speed, local topography, foliage and proximity to existing wind turbines. Refer to Appendix F for full details on the ambient noise readings conducted for the AEWP. Mountain View High School and the Church of Latter Day Saints are public facilities located adjacent to the South Residential Area approximately three miles southeast of the AEWP boundary at the intersection of Koch Street and Douglas Avenue.

3.9.2 Applicable Regulations, Plans, and Standards

3.9.2.1 Federal

U.S. EPA

Under the Occupational Safety and Health Act of 1970 (OSHA) (29 U.S.C. §651 et seq.), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR §1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed, as shown in Table 3.9-3. The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection (§1910.95(i)). No federal laws govern community noise.

Although no federal noise regulations exist, the EPA has promulgated noise guidelines (USEPA, 1974). The EPA guideline recommends an Ldn of 55 dBA to protect the public from the effect of broadband environmental noise outdoors in residential areas and farms, and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use (USEPA, 1974). However, using the assumption that the noise is of broadband character can lead to errors of 5 to 10 dB by which the risk of the sound exposure is underestimated (USEPA, 1974). This assumption could lead to greater errors if a substantial portion of the exposure is to noise with intense pure tone components, such as those generated by wind turbines.

Bureau of Land Management California Desert Conservation Area Plan

The California Desert Conservation Area (CDCA) Plan (BLM, 2007) contains provisions for public land-use management in the California Desert District under the BLM's jurisdiction. Since its first date of publication in 1980, the CDCA Plan has been amended to incorporate public concerns and congressional mandates in regard to the use of desert resources, such as the provisions of the California Desert Protection Act of 1994.

Noise-related guidelines established in the CDCA Plan include long-term monitoring of effects of vehicle noise on wildlife (Chapter 3, Wildlife Element) and implementation of land use compatibility standards with limited (vehicle use) areas to minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands (Chapter 3, Motorized-Vehicle Access Element).

3.9.2.2 State

California Government Code §65302 encourages each local government entity to implement a noise element as part of its general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. These recommendations have been incorporated into the Kern County Noise Element (see below).

The California Occupational Safety and Health Administration has promulgated Occupational Noise Exposure Regulations (California Code of Regulations, Title 8, Section 5095-5099) that set employee noise exposure limits. These standards are equivalent to the Federal OSHA standards identified in Table 3.9-5.

Table 3.9-5. OSHA-Permissible Noise Exposure Standards

Duration of Noise (hours/day)	A-Weighted Noise Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Source: USEPA, 1974.

3.9.2.3 Kern County

Within the State of California, noise from wind turbine generator operations is typically regulated at the county level. For Kern County, the applicable documents are the Noise Element of the Kern County General Plan and Section 19.64.140.J of the Kern County Zoning Ordinance, which is found in Chapter 19.64, Wind Energy (WE) Combining District.

Kern County General Plan (KCGP) and Applicable Specific Plans

The AEWP boundaries are located predominately within the KCGP with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures related to noise, as discussed below. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to noise.

KCGP Provisions

The Kern County General Plan Noise Element identifies goals, policies, and implementation measures that guide development with regard to noise. The Kern County General Plan Noise Element identifies both residential and park/recreational areas as *noise sensitive*. In *noise sensitive* areas, noise level generated by new projects is to be mitigated to 65 dB Ldn or less in outdoor activity areas and 45 dB Ldn or less within interior living spaces, as specified in the Kern County Zoning Ordinance Section

19.64.140.J (zoning ordinance is discussed below). The following General Plan goals and policies are applicable to the AEWP:

Chapter 3. Noise Element

Section 3.2. Noise Sensitive Areas

Goals

- **Goal 1.** Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Policies

- **Policy 1.** Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- **Policy 2.** Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health (DOSH)
- **Policy 3.** Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- **Policy 4.** Utilize good land use planning principles to reduce conflicts related to noise emissions.
- **Policy 5.** Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:
  a. 65 dB-Ldn or less in outdoor activity areas.
  b. 45 dB-Ldn or less within living spaces or other noise sensitive interior spaces.
- **Policy 7.** Employ the best available methods of noise control.
- **Policy 8.** Enforce State Noise Insulation Standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code concerning construction of new multiple-occupancy dwellings such as hotels, apartments, and condominiums

Implementation Measures

- **Implementation Measure A.** Utilize zoning regulations to assist in achieving noise-compatible land use patterns.
- **Implementation Measure C.** Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.
- **Implementation Measure F.** Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn.
- **Implementation Measure G.** At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:
  a) Be the responsibility of the applicant.

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

- **Implementation Measure H.** Encourage cooperation between the County and the incorporated cities within the County to control noise.
- **Implementation Measure I.** Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

- **Implementation Measure J.** Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Mojave Specific Plan Provisions

Goals

- **Goal.** Evaluate transportation-related noise.
- **Goal.** Evaluate noise during land use planning efforts.

Policies

- **Policy 8.1.1.** Reduce transportation-related noise impacts on sensitive land uses (as defined in the Kern County Noise Element) through the use of noise control measures.
- **Policy 8.1.3.** Identify potential impacts from transportation noise during the planning stages of the development process. Mitigation measures (such as buffering, clustering or sound walls) shall be used as needed to meet County Noise Element and/or Airport Land Use Compatibility Plan standards.

Kern County Ordinance; Health and Safety (Title 8)

Chapter 8.36, Noise Control (Section 8.36.020, Prohibited Sounds) of the Ordinance Code of Kern County prohibits construction noise between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction site, if the construction site is within 1,000 feet of an occupied residential dwelling except for emergency work or when the resource management director or his designated representative provides an exemption for a limited time.

Kern County Zoning Ordinance (Title 19)

Chapter 19.64. Wind Energy (WE) Combining District

The WE Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to noise issues related to the AEWP.

Section 19.64.140 (Development Standards and Conditions) – Subsection J

Where a residence, school, church, public library, or other sensitive or highly sensitive land use, as identified in the Noise Element of the County General Plan, is located within one (1) mile in a prevailing downwind direction or within one-half (½) mile in any other direction of a project's exterior boundary, an acoustical analysis shall be prepared by a qualified acoustical consultant prior to the issuance of any building permit. The consultant and the resulting report shall be subject to review and approval by the Kern County Health Department. The report shall address any potential impacts on sensitive or highly sensitive land uses. In addition, the acoustical report shall demonstrate that the proposed development shall comply with the following criteria:

1. Audible noise due to wind turbine operations shall not be created which causes the exterior noise level to exceed forty-five (45) dBA for more than five (5) minutes out of any one- (1)-hour time period using the L_8 metric or to exceed fifty (50) dBA for any period of time when measured within 50 feet of any existing residence, school, hospital, church, or public library.
2. Low frequency noise or infrasound from wind turbine operations shall not be created which causes the exterior noise level to exceed the following limits when measured within 50 feet of any existing residence, school, hospital, church, or public library.

One-Third Octave Band Center Frequency (Hz)	Sound Pressure Level (dB)
2 to 1	70 (each band)
20	68
25	67
31.5	65
40	62
50	60
63	57
80	55
100	52
125	50

3. In the event audible noise due to wind turbine operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by five (5) dBA. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one-third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.
4. In the event the audible noise due to wind turbine operations contains repetitive impulsive sounds, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by five (5) dBA.
5. In the event the audible noise due to wind turbine operations contains both a pure tone and repetitive impulsive sounds, the standards for audible noise set forth in Subparagraph (1) of this subsection shall be reduced by a total of five (5) dBA.
6. In the event the ambient noise level (exclusive of the development in question) exceeds one (1) of the standards given above, the applicable standard shall be adjusted so as to equal the

ambient noise level. For audible noise, the ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA which is exceeded for no more than five (5) minutes per hour.

For low frequency noise or infrasound, the ambient noise level shall be expressed in terms of the equivalent level (L_{eq}) for the one-third (1/3) octave band in question, rounded to the nearest whole decibel. Ambient noise levels shall be measured within fifty (50) feet of potentially affected existing residences, schools, hospitals, churches, or public libraries. Ambient noise level measurement techniques shall employ all practical means of reducing the effects of wind-generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.

7. Any noise level falling between two (2) whole decibels shall be the lower of the two (2).
8. In the event that noise levels, resulting from a proposed development, exceed the criteria listed above, a waiver to said levels may be granted by the Planning Director provided that the following has been accomplished:
    a. Written consent from the affected property owners has been obtained stating that they are aware of the proposed development and the noise limitations imposed by this code, and that consent is granted to allow noise levels to exceed the maximum limits allowed.
    b. A permanent noise impact easement has been recorded in the County Hall of Records which describes the benefited and burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by this code may exist on or at the burdened property.

3.10 Paleontological Resources

This section of the Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) provides contextual background information on paleontological resources in the Alta East Wind Project (AEWP), including the area's geology. A complete discussion of the AEWP's geology is included in section 3.15, Geology and Soil Resources, of this document. This section also includes a review of previous studies and the results of field surveys within the AEWP area.

This section is based on both the paleontological literature searches conducted by CH2M HILL and discussed in their *Alta East Wind Project – Initial Paleontological Resources Assessment* (CH2M HILL, 2010d) and the paleontological literature searches and inventories conducted by LSA and discussed in their *Paleontological Resources Assessment for the Alta East Wind Project* (LSA, 2011). The purpose of these studies was to determine whether there is the potential for AEWP development to affect significant, nonrenewable paleontological resources. The Bureau of Land Management (BLM), Ridgecrest District, manages portions of the land considered for development by the AEWP. The BLM recognized the potential for encountering significant, nonrenewable paleontological resources within the AEWP. Paleontological assessments followed the scope of work approved by the BLM and were in compliance with the requirements of existing BLM policy.

3.10.1 Environmental Setting

The AEWP falls within the westernmost Mojave Desert Province, at its margin with the Tehachapi Mountains of the southern Sierra Nevada Province, and about 40 miles south of the junction of those two geologic provinces with the southernmost Basin and Range geologic province. Tectonic structures result from the interaction of these three major geological provinces. One structure is the sedimentary basin formed along the Garlock Fault that contains early Pliocene sediments now exposed as the Horned Toad Formation in the Horned Toad Hills (LSA, 2011:4).

This portion of the western Mojave Desert province has valley bottoms at elevations of 2,500 feet above mean sea level (AMSL), while the Tehachapi Mountains to the west reach elevations over 6,500 feet AMSL. Low slopes at the foot of the Horned Toad Hills are covered by creosote scrub brush. Elevations above 3,500 feet in the Horned Toad Hills host stands of juniper trees.

Geology

A complete discussion of the Regional Geology, Local Geology and Geological Hazards related to the AEWP is included in Section 3.15, Geology and Soil Resources, of this document. An overview of the geological settings specifically relevant to paleontological resources is included below:

The following paragraphs from *Paleontological Resources Assessment, Alta East Wind Project, Horned Toad Hills, Mojave, Kern County, California* (LSA, 2011) provide the geological and paleontological setting for the AEWP area. The Mojave Desert geologic province is bounded on the southwest by the right lateral San Andreas Fault, and on the north and west by the left-lateral Garlock Fault, which is immediately north of the AEWP. The Mojave Desert Province is characterized by northwest-trending fault block mountain ranges separated by valleys that are longer than wide. The northern portion of the Mojave Province contains west-trending left lateral faults that are roughly parallel to the Garlock Fault to the north. In general, the mountain ranges in the western Mojave Desert consist of Mesozoic granitic and metamorphic rocks and early Miocene sedimentary and extrusive volcanic rocks. Mountain ranges along faults shed fanglomerates, which become fine-grained toward the valley center. It is these sediments that host important fossils that help describe the timing of fault activity (LSA, 2011:4).

The Early Pliocene Horned Toad Formation fills a basin along the Garlock Fault. The formation contains the 4.83 million year old (Ma) Lawlor Tuff, a date supporting the early Pliocene age of the deposit. The original planar orientation of sedimentary layers has been deformed by fault activity into synclinal and

anticlinal folds, indicating that activity on the Garlock Fault continued after they were deposited. Coarse fanglomerates (Horned Toad Formation Members 1 and 5) demonstrate that Cameron Ridge to the west was actively uplifting early and late in the depositional history of the formation. Paleosols (fossil soil horizons) show that deposition slowed, allowing soils to form in upper Member 1 and in Members 4 and 5. Members 2 and 3 are silty sand and clay, suggesting deposition in an internally drained basin. In Pleistocene time, braided axial drainage systems fed into Koehn Lake and Pleistocene Lake Thompson and covered the exposures of the Pliocene Horned Toad Formation with Old Pleistocene alluvium (Oa) and late Pleistocene alluvium (Qa; LSA, 2011).

Paleontology

Paleontological resources are the mineralized (fossilized) remains of prehistoric plants and animals and the mineralized impressions (trace fossils) left as indirect evidence of the form and activity of such organisms. These resources are located within sedimentary rocks or alluvium and are considered to be nonrenewable.

The University of California, Berkeley started paleontological investigations in the Horned Toad Hills around 1925. Investigations continued in the late 1960s through 1980s by the University of California, Riverside (UCR). Research between 2006 and 2008 was designed to increase the definition of the Hemphillian/Blancan boundary.

CH2M HILL (2010d) and LSA (2011) characterize the AEWP area by the following geological units:

Horned Toad Formation. This geological unit is composed of deep deposits of terrestrial sandstones and clays. It rests unconformably on granitic basement rocks and is restricted to the Horned Toad Hills northwest of Mojave (CH2M HILL, 2010d:6). This formation was initially divided into three members and later into five members. This assessment informally divides Member 1 into lower and upper divisions, based on a higher frequency of paleosols (buried soil horizons) in the upper portion. The presence of paleosols suggests a longer time and/or slower rate of deposition with periods of stable surfaces when soils could develop (LSA, 2011:11).

Horned Toad Formation-Lower Member 1 (HT1L) — poorly sorted, moderately indurated, arkosic and conglomeratic sandstone. Gray and tan with infrequent reddish paleosols.

Horned Toad Formation-Upper Member 1 (HT1U) — poorly sorted, moderately indurated, arkosic and conglomeratic sandstone. Tan arkosic sandstone with increasing amounts of brick-red silty sandstone due to deeply weathered paleosols.

Horned Toad Formation-Member 2 (HT2) — resistant white, thin-layered silty sandstone with occasional orange paleosols. The resistant, white, blocky Lawlor Tuff (4.83 Ma) is present across the boundary between members 2 and 3.

Horned Toad Formation-Member 3 (HT 3) — dark olive green mudstone.

Horned Toad Formation-Member 4 (HT 4) — brick-red, calcareous paleosols alternating with well sorted, tan arkosic sandstone.

Horned Toad Formation-Member 5 (HT 5) — poorly indurated, with brick-red silty paleosols between poorly sorted tan lenses of conglomeratic arkosic sandstone.

Older Pleistocene Alluvium (OA). Alluvium of Late Pleistocene and Holocene age (CH2M HILL, 2010d:6). Gray, poorly sorted conglomeratic sandstone defining a remnant surface now dissected by washes. When present, paleosols are brown to reddish-brown. (LSA, 2011:12).

Quaternary Alluvium (QA). Fanglomerates and terrace gravels, often dissected and indurated. Finer grained facies include silt and sand. The detritus is almost exclusively of granitic origin. (CH2M HILL,

2010d:6). Gray to tan, unconsolidated arkosic sand. If present, soil horizons are grayish-brown surficial layers (LSA, 2011:12).

Older Tertiary Rhyolitic Felsite (TR). An intrusive igneous unit of limited extent in the project area. (CH2M HILL, 2010d:6).

3.10.1.1 Identified Paleontological Resources

Previous Research

In October 2010, an Initial Paleontological Resources Assessment (CH2MHILL, 2010d) was prepared for the AEWP. LSA conducted an additional records search through electronic databases of the University of California's Museum of Paleontology (UCMP). Mr. Reynolds, of LSA, conducted an additional search for records from research paleontologists with a previous record of conducting investigations in the Pliocene sediments of the Horned Toad Hills. Researchers interviewed included Drs. Michael Woodburne, Everett Lindsay, Steven R. May, and Marilyn Kooser (UCR) and utilized relevant personal communication (LSA, 2011).

Available geologic and paleontological literature and geologic mapping and locality records were collected and consulted to determine the potential for early Pliocene and older Pleistocene sediments underlying and surrounding the AEWP to contain significant, nonrenewable paleontological resources.

Records searches through UCMP (CH2MHILL, 2010d) and subsequent UCMP records searches produced a list of 30 localities from the Horned Toad Formation. UCR responded that all paleontological resource records had been forwarded to UCMP. Correspondence with paleontologists working recently under BLM permit in the Horned Toad Formation provided additional faunal lists, maps, and photo localities (LSA, 2011:12).

Unpublished research conducted by paleontologists Woodburne, Lindsay, and Reynolds in 2008 focused on finding taxa above the 4.83 Ma Lawlor Tuff in upper Member 3 and lower Member 4 that might represent the taxonomic transition from the late Hemphillian to the early Blancan NALMA. This research resulted in identification of taxa from the Horned Toad Formation that represent the Hemphillian/Blancan transition, but not a pure Blancan fauna (LSA, 2011:15).

BLM guidelines provide a detailed analysis in the form of the BLM Potential Fossil Yield Classification (PFYC) system, as can be seen in Table 3.10-1. A preliminary PFYC map was developed for the field with GIS data, based on the research and literature reviews, and geologic mapping and locality records received. The preliminary PFYC for the AEWP area ranged from Class 1, Class 2, Class 3b, to Class 5a.

Table 3.10-1. BLM Potential Fossil Yield Classification (PFYC) System

Class	Sensitivity	Description and Basis
Class 1	Very Low	Geologic units that are not likely to contain recognizable fossil remains. • Units that are igneous or metamorphic, excluding reworked volcanic ash units. • Units that are Precambrian in age or older.
Class 2	Low	Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils. • Units that are younger than 10,000 years before present. • Vertebrate or significant invertebrate fossils not present or very rare.
Class 3a	Moderate	Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. • Vertebrate fossils known to occur inconsistently and predictability is known to be low. • Poorly studied/poorly documented. • Units are known to contain vertebrate fossils or scientifically significant invertebrate fossils, but these occurrences are widely scattered.

Table 3.10-1. BLM Potential Fossil Yield Classification (PFYC) System

Class	Sensitivity	Description and Basis
Class 3b	Unknown	Fossiliferous sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential. • Vertebrate fossils known to occur inconsistently and predictability is known to be low. • Poorly studied/poorly documented. • Units exhibit geologic features and preservational conditions that suggest significant fossils could be present.
Class 4a	High	Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases. • Unit is exposed with little or no vegetative cover. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions.
Class 4b	High	Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface disturbing activities may adversely affect paleontological resources in many cases. • Unit has extensive soil or vegetative cover. Paleontological resources have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances.
Class 5a	Very High	Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientlifically significant invertebrate fossils, and that are at risk of human-caused adverse impacts or natural degradation. • Unit is exposed with little or no vegetative cover. Paleontological resources are highly susceptible to adverse impacts from surface disturbing actions.
Class 5b	Very High	Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientlifically significant invertebrate fossils, and that are at risk of human-caused adverse impacts or natural degradation. • Unit has extensive soil or vegetative cover. Paleontological resources have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances.

Source: LSA, 2011.

Field Inventory Results

An intensive reconnaissance-level field was conducted for the AEWP in December 2010 and completed by February 2011. The primary objective of the field survey was to delineate known and new sites within the AEWP area. A secondary objective was to verify the preliminary PFYC and geology within the AEWP area (LSA, 2011:9). Standard paleontological survey practice is to leave significant but non-diagnostic limb fragments at the outcrop to indicate where additional remains might occur, keeping fragments together for future intensive collections and salvage. Diagnostic fossils were collected and the field numbers were copied to the wrapping material and the plastic zip-lock bag containing the specimen to keep provenance with the specimen (LSA, 2011:10). The field assessment located 12 previously reported sites and 69 new localities from exposures of the Horned Toad Formation within the AEWP.

In all, paleontological research and field inventory studies for the AEWP documented 103 fossil localities in the Horned Toad Formation containing 35 different taxa. Of the 103 total localities, 69 were identified through the current survey, and an additional 12 previously recorded localities were re-located (LSA, 2011). The remaining 22 localities were recorded by the Paleontology Museum of the University of California, Berkeley. Precise location data for these sites was not provided (LSA, 2011:20).

3.10.2 Applicable Regulations, Plans, and Standards

A variety of federal statutes specifically address paleontological resources. They generally become applicable to specific projects if that project crosses federal lands or involves a federal agency license,

permits, approval, or funding. The following summarizes federal and State regulations pertaining to paleontological resources and how these integrate with AEWP development and delivery activities.

3.10.1.1 Federal

Antiquities Act of 1906 (16 United States Code [USC] 431-433). The Antiquities Act of 1906 states, in part: That any person who shall appropriate, excavate, injure or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court. Although there is no specific mention of natural or paleontological resources in the Act itself, or in the Act's uniform rules and regulations (Title 43 Part 3, Code of Federal Regulations [43 CFR 3]), "objects of antiquity" has been interpreted to include fossils by the National Park Service (NPS), the Bureau of Land Management (BLM), the Forest Service (FS), and other federal agencies. Permits to collect fossils on lands administered by federal agencies are authorized under this Act (see "Permit Requirements of Federal Agencies section, below). Therefore, projects involving federal lands will require permits for both paleontological resource evaluation and mitigation efforts.

Archaeological and Paleontological Salvage (23 USC 305). Statute 23 USC 305 amends the Antiquities Act of 1906. Specifically, it states: Funds authorized to be appropriated to carry out this title to the extent approved as necessary, by the highway department of any State, may be used for archaeological and paleontological salvage in that state in compliance with the Act entitled "An Act for the preservation of American Antiquities," approved June 8, 1906 (PL 59-209; 16 USC 431-433), and State laws where applicable.

This statute allows funding for mitigation of paleontological resources recovered pursuant to Federal aid highway projects, provided that "excavated objects and information are to be used for public purposes without private gain to any individual or organization" (Federal Register [FR] 46(19): 9570; [Also see FHWA policy section, below]).

National Registry of Natural Landmarks (16 USC 461-467). The National Natural Landmarks (NNL) program was established in 1962 and is administered under the Historic Sites Act of 1935. Implementing regulations were first published in 1980 under 36 CFR 1212 and the program was re-designated as 36 CFR 62 in 1981. A National Natural Landmark is defined as:

> *…an area designated by the Secretary of the Interior as being of national significance to the United States because it is an outstanding example(s) of major biological and geological features found within the boundaries of the United States or its Territories or on the Outer Continental Shelf (36 CFR 62.2).*

National significance describes:

> *… an area that is one of the best examples of a biological community or geological feature within a natural region of the United States, including terrestrial communities, landforms, geological features and processes, habitats of native plant and animal species, or fossil evidence of the development of life (36 CFR 62.2).*

Federal agencies (e.g., FHWA) and their agents (e.g., Caltrans) should consider the existence and location of designated NNLs, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under section 102(2)(c) of the National Environmental Policy Act (NEPA) (42 USC 4321). The NPS is responsible for providing requested information about the National Natural Landmarks Program for these assessments (36 CFR 62.6(f)). However, other than consideration under NEPA, NNLs are afforded no special protection. Furthermore, there is no

requirement to evaluate a paleontological resource for listing as an NNL. Finally, project proponents (State and local) are not obligated to prepare an application for listing potential NNLs, should such a resource be encountered during project planning and delivery. For an up-to-date listing of NNLs, visit the National Natural Landmarks website.

National Environmental Policy Act of 1969 (42 USC 4321). The National Environmental Policy Act (NEPA) directs Federal agencies to use all practicable means to "Preserve important historic, cultural, and natural aspects of our national heritage…" (Section 101(b) (4)). Regulations for implementing the procedural provisions of NEPA are found in 40 CFR 1500 1508.

If the presence of a significant environmental resource is identified during the scoping process, federal agencies and their agents must take the resource into consideration when evaluating project effects. Consideration of paleontological resources may be required under NEPA when a project is proposed for development on federal land, or land under federal jurisdiction. The level of consideration depends upon the federal agency involved (see section, below, entitled Identification of Regulatory/Management Agencies).

1872 Mining Law, amended 1988. Excludes fossils (including petrified wood) from claim or patent. U.S. Forest Service and Bureau of Land Management regulates surface effects of development under this law. BLM regulations specifically state that operators may not knowingly disturb or destroy any scientifically important paleontological remains on federal lands; that they notify an authorized officer of such finds; and that said officer shall take action to protect or remove the resource(s).

Mineral Leasing Act of 1920 (sec. 30). Requires and provides for the protection of interest of the United States. Natural resources, including paleontologic resources, are commonly regarded as such interests.

Executive Order 11593, May 31, 1971, Protection and Enhancement of the Cultural Environment (36 CFR 8921). Requires federal agencies to inventory and protect properties under their jurisdiction. National Park Service regulations under 36 CFR 8921 provide that paleontologic specimens may not be disturbed or removed without a permit.

Archaeological and Historic Data Preservation Act of 1974 (P.L. 86-253, as amended by P.L. 93-921, 16 U.S.C. 469).Act of May 24, 1974 (88 Stat 174, sec. 3 a0, 4a). Provides for the survey, recovery, and preservation of significant scientific, prehistoric, historic, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded project. A "Statement of Program Approach" was published in the *Federal Register* on March 26, 1979 (40 FR 18117) to advise the manner in which this law will be implemented.

Federal Land Management and Policy Act of 1976 (FLPMA, P.L. 94-579, 43 U.S.C. 1701-1782). Provides authority for BLM to regulate lands under its jurisdiction, managed in a manner to "protect the quality of scientific, scenic, historic, ecological, environmental...and archaeological values." Authority is given to establish areas of critical environmental concern (ACEC).

Surface Mining Control and Reclamation Act of 1977 (SMCRA, P.L. 95-87, 30 U.S.C. 1201-1328). Regulates surface coal mining and provides designation as unsuitable for surface mining if mining would "...result in significant damage to important cultural, scientific, and esthetic values and natural systems...."

Paleontological Resource Management 1998, Bureau of Land Management Handbook H-8270-1. Provides general procedural guidance for paleontological management.

3.10.1.1 State

At the state level, the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Sections 21000 et seq.) requires public agencies and private interests to identify the environmental consequences of their proposed projects on any object or site of significance to the scientific annals of

California (Division I, PRC: 5020.1[b]). Although CEQA does not define what is "a unique paleontological resource or site," Section 21083.2 defines "unique archaeological resources" as "any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

It has a special and particular quality such as being the oldest of its type or the best available example of its type.

Is directly associated with a scientifically recognized important prehistoric or historic event.

With only slight modification, this definition is equally applicable to recognizing "a unique paleontological resource or site." Additional guidance is provided in CEQA Section 15064.5(a)(3)(D), which indicates "Generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, important information in prehistory or history."

3.10.1.2 Local

The AEWP is located predominately within the Kern County General Plan with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to cultural resources. The Mojave Specific Plan contains policies, goals, and implementation measures that are general in nature and not specific to development such as the AEWP.

Kern County General Plan (KCGP)

Chapter 1. Land Use, Open Space, and Conservation Element

1.10.3. – Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

- **Policy 25.** The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

- **Implementation Measure K.** Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.
- **Implementation Measure L.** The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.
- **Implementation Measure M.** In areas of known paleontological resources, the County should address the preservation of these resources where feasible.
- **Implementation Measure N.** The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.
- **Implementation Measure O.** On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

Kern County Ordinance (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to cultural resources issues related to the project.

- **19.64.140(H):** All wind projects, including wind generators and towers, shall comply with all applicable County, State, and federal laws, ordinances and regulations.

3.11 Public Health and Safety

This section discusses the baseline conditions for potential public health and safety issues related to implementation of the Alta East Wind Project (AEWP). The topics addressed in this section include: Aircraft Operations, Hazardous Materials, Emergency Response (excluding Wildland-specific Fire Response which is discussed in Section 3.20, Wildland Fire Ecology), Public Health, and Intentionally Destructive Acts. Another public health and safety issue, Seismic Hazards, is discussed in section 3.15 (Soil Resources). The region of influence for public health and safety concerns includes the area within and adjacent to the AEWP site, as well as consideration at a more regional Kern County level.

The analysis in this section utilizes, in part, the *Air Quality and Greenhouse Gas Technical Report for the Alta East Wind Project*, prepared by CH2MHILL (CH2MHLL, 2011e), and *Alta East Wind Project – Geologic Resources*, prepared by CH2MHILL (CH2MHILL, 2010b). The complete text of these reports is provided as Appendices G and N of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR).

3.11.1 Environmental Setting

The environmental setting for Aircraft Operations, Hazardous Materials, Emergency Response (excluding Wildland-specific Fire Response which is discussed in Section 3.21, Wildland Fire Ecology), Public Health, and Intentionally Destructive Acts is presented in this section. In addition, residences in close proximity to the AEWP site are described herein, as their location determines their exposure to the potential hazards described below.

Current and historic uses of the AEWP site include atmospheric monitoring, high voltage transmission tower lines, off-road recreational vehicle activities, hunting, and hiking. The adjacent properties are relatively undeveloped except for sparse residential development to the north and south, as well as SR 58 which bisects the site.

3.11.1.1 Aircraft Operations

Four commercial airports are located within 10 miles of the AEWP site: the Mojave Air and Spaceport 3.0 miles to the southeast, the Mountain Valley Airport 7.5 miles to the west, the Tehachapi Municipal Airport 9.5 miles to the west, and the California City Municipal Airport located 9.2 miles northeast.

The northern edge of the Mojave Air and Spaceport runway is located about one mile southeast of the closest portion of the AEWP boundary. Portions of the eastern boundary of the AEWP site are located within Zone C of the Sphere of Influence designated by the Airport Land Use Compatibility Plan (ALUCP) for the Mojave Air and Spaceport. The closest proposed WTG is located about 1.3 miles northwest of the runway and no WTGs or WE Zoning is proposed within the boundaries of the ALUCP or Sphere of Influence. The Mojave Air and Spaceport is continuously attended and operates three paved runways averaging 48 operations per day for the 12-month period ending May 3, 2011. Of these operations, 38 percent were local general aviation, 59 percent were transient general aviation, one percent were commercial operations, one percent were air taxi operations, and less than one percent were military operations (AirNav 2012a).

The Pontious Airport in Mojave is the nearest private airstrip, located 10 miles southeast of the AEWP boundary. The Pontious Airport consists of two private use airstrips, and permission is required prior to landing (AirNav 2011a).

Mountain Valley Airport, a public single-runway airport averaged 137 aircraft operations per day for the 12-month period ending May 2, 2011 (AirNav, 2011b). Tehachapi Municipal Airport, also a public single-runway airport averaged 30 aircraft operations per day for the 12-month period ending May 2,

2011. California City Municipal Airport, also a public airport with two runways averages 102 flights per day for the 12-month period ending on May 12, 2011 (AirNav, 2011c).

A major military facility, Edwards Air Force Base (AFB), is located 9.5 miles to the southeast. Edwards AFB is an installation of the United States Air Force and serves air force military aircraft (AirNav, 2011d). Edwards AFB covers nearly 308,000 acres (USAF, 2011), and contains two parallel runways oriented northeast/southwest, Runways 4/22 left and right (AirNav, 2011d). As Edwards AFB is a United States Air Force military airfield, the number of daily aircraft operations is unavailable to the general public (AirNav, 2011d).

Using the longitude and latitude of the site center point, the AEWP site was run through the California Military Land Use Compatibility Analysis (CMLUCA) database to determine whether the site is located within 1,000 feet of a military installation, is located within military special-use airspace, or is located beneath a military designated low-level flight path (CMLUCA, 2011). Based on the CMLUCA report, the AEWP is located within special-use airspaces and beneath an area designated for low-level military flight paths (CMLUCA, 2011).

Installation of the WTGs would be required to comply with Federal Aviation Administration (FAA) Advisory Circular 70/7460-1, Obstruction Lighting/Marking, requirements. The project proponent would file form 7460-1, Notification of Proposed Construction or Alteration, with the FAA for each WTG. The FAA will determine the appropriate lighting required for the AEWP and the appropriate exterior finish for the WTGs for daylight marking to ensure safety.

3.11.1.2 Seismic Hazards

Geologic hazards are normally associated with issues such as seismicity (ground shaking), slope instability, subsidence, and expansive soils. Seismic hazards related to ground shaking include ground rupture, slope instability, liquefaction, seismic compaction, tsunamis, and seiches. A discussion of the affected environment of the AEWP site regarding geologic hazards, including earthquakes and seismic activity is included in Section 3.14 (Soil Resources).

3.11.1.3 Hazardous Materials

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health and the environment. Under Title 22 of the California Code of Regulations (CCR), the term “hazardous substance” refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and, (4) reactivity (CCR Title 22, Chapter 11, and Article 3). A hazardous material is defined in CCR, Title 22 as:

> *…A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (CCR, Title 22, Section 66260.10).*

Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials.

Construction and operation of the AEWP would require the use of limited amounts of various petrochemicals, including fuels, lubricants, and solvents to operate and maintain equipment. At this time, specific quantities of hazardous materials are not known.

The transportation of hazardous materials within the State of California is subject to various Federal, State, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery or the loading of such materials (California Vehicle Code §§ 31602[b], 32104[a]). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Transportation of hazardous materials is restricted to these routes except in cases where additional travel is required from that route to deliver or receive hazardous materials to and from users.

Several factors associated with the location of a AEWP affect the potential for an accidental release of a hazardous material that could cause public health impacts. These factors, which are discussed in detail below, include:

- Local meteorology;
- Terrain characteristics;
- Location of population centers and sensitive receptors relative to the AEWP;
- Existing public health concerns; and
- Existing environmental site contamination.

In addition, according to the Mineral Resources Data System, the occurrence of uranium has been located about half a mile east of the southeast boundary of the AEWP site. Section 3.8 (Mineral Resources) provides the setting information associated with this occurrence, and Section 4.8 (Mineral Resources) address the potential for radioactivity associated with this occurrence. As discussed in Section 3.8, an Unnamed Uranium Occurrence is located about half a mile east of the southeast boundary of the AEWP site. Uranium, in the form found naturally, is only mildly radioactive, producing alpha radiation. This particular type of radiation is easily shielded, has a very short range, and will not penetrate skin, paper or clothing (USGS, 2012). In addition to the distance between the deposit and the AEWP boundary, there is a physical barrier since the deposit site is located within a creek bed, as well as regulatory barriers due to development/setback constraints imposed by LADWP (CH2MHILL 2012). Therefore, the AEWP site is far outside the effective range of any radiation that could be emitted from this deposit.

Meteorological Conditions

Meteorological conditions, including wind speed, wind direction, and air temperature, affect both the extent to which accidentally released hazardous materials would disperse into the air and the direction in which they would be transported. These conditions affect the potential magnitude and extent of public exposure to such materials, as well as exposure to associated health risks. When wind speeds are low and the atmosphere stable, dispersion is reduced but could lead to increased localized public exposure.

The AEWP site is located in the western Mojave Desert, in a rural part of the Antelope Valley (Kern County), within the foothills of the Tehachapi Mountains known as the Horned Toad Hills. The climate of the area is characterized by relatively hot summers, mild winters, large diurnal ranges in temperature, irregular rainfall, low relative humidity, and abundant sunshine. The basin in which the AEWP site is located is separated from the coastal regions by two mountain ranges that provide a climatological boundary and also provide a unique wind flow pattern conducive to wind energy projects. This area is known as the Tehachapi Wind Resource Area and has some of the best wind resources in California. Several wind facilities already exist in this area and many more are currently undergoing the regulatory review process. Recorded wind speeds and ambient air temperatures are described in Section 3.2, Air Resources.

In the Community of Mojave, California, July is usually the warmest month of the year, with temperatures ranging from 70 to 98 degrees Fahrenheit (°F). The coldest month is usually December, with temperatures ranging from 33 to 57°F. Relative humidity in the Mojave Desert is typically 10 percent on summer afternoons and 30 percent on winter afternoons. Precipitation in the vicinity of the AEWP

averages approximately 5.9 inches per year, with most of the precipitation in the winter (CH2MHILL, 2011e).

Terrain Characteristics

The location of elevated terrain is often an important factor in assessing potential exposure. An emission plume resulting from an accidental release could impact high elevations before impacting lower elevations. The topography of the AEWP site indicates a dip trend from the west to the southeast, with elevations in the AEWP area range between 3,000 and 3,400 feet above mean sea level (CH2MHILL, 2011n).

Location of Exposed Populations and Sensitive Receptors

The general population includes many sensitive subgroups that could be at greater risk from exposure to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those with existing illnesses. In addition, the location of the population in the area surrounding a project site may have a major bearing on health risk.

The nearest sensitive receptors to the AEWP site are residential properties located approximately 100 feet east of the AEWP northern boundary, north of State Route 58. The nearest specific sensitive receptor is Mountain View High School located approximately three miles southeast of the AEWP. The locations of residential receptors adjacent to the AEWP site are presented in Figure 3.9-2 of Appendix A and discussed within Section 3.9 (Noise).

Existing Environmental Site Contamination

According to the Department of Toxic Substances Control (DTSC) Hazardous Waste and Substances site "Cortese" list, no hazardous waste facilities subject to corrective action are located on the AEWP site (DTSC, 2011). However, results of an Environmental Site Assessment Report prepared on February 3, 2009, showed that areas of stained soil were observed within the AEWP site around damaged electrical transformers on Property Section 28 (Land America, 2009). The Phase 1 Environmental Site Assessment determined that additional assessment should be conducted to identify appropriate corrective actions (Land America, 2009). This action is under preparation and will be completed prior to AEWP construction (Land America, 2009). For a further discussion of soils, please refer to Sections 3.14 and 4.14 (Geology and Soil Resources).

Pesticide Use

Pesticides are used to control living organisms that cause damage or economic loss, or transmit or produce disease. Pests include insects, fungi, weeds, rodents, nematodes, algae, viruses, or bacteria. Pesticides include herbicides, fungicides, insecticides, rodenticides, and disinfectants, as well as insect growth regulators. In California, adjuvants (substances added to enhance the efficacy of a pesticide) are also subject to the regulations that control pesticides.

Based on the review of reasonably ascertainable historical information the AEWP site has been undeveloped land since at least 1952 with no known uses of pesticides occurring (Land America, 2009). Furthermore, no conditions of environmental concern, including the use of pesticides, were identified during reconnaissance of adjoining properties (Land America, 2009).

Abandoned Mined Lands

A discussion of any known abandoned mines and openings within the AEWP site are discussed in Section 3.8 (Mineral Resources).

Unexploded Ordnance (UXO)

No evidence of UXO or any type of military trash has been identified during Phase I Environmental Site Assessment record searches or field reconnaissance (Land America, 2009). Additionally, no evidence has been discovered to show that military operations have previously occurred on the AEWP site (Land America, 2009).

3.11.1.4 Emergency Response

Fire Protection

As discussed in Section 3.21 (Wildland Fire Ecology), four fire stations are located within 30 miles of the AEWP providing first responder fire and emergency medical services.

California Highway Patrol

The CHP provides traffic regulation enforcement; oversees response to emergency incidents on California's highways or assists other public agencies responding to emergency incidents; and promotes the safe and efficient movement of people and goods on California highways to minimize loss of life, injuries, and property damage. CHP officers patrol State highways and implement the CHP's other law enforcement activities (e.g., drug interception, vehicle theft investigation and prevention, vehicle inspections, accident investigations, and public awareness campaigns), with the support of the non-uniformed personnel assigned to area and division offices.

The CHP has eight divisions that provide services throughout California. Kern County is located in both the Central and Inland Division service areas (CHP 2011). However, the AEWP site would be within the jurisdiction of the Inland Division and the Mojave area office within the Inland Division would be the primary CHP responders in the event of an emergency, which is located 4 miles southeast of the site.

Kern County Sherriff's Office

The Kern County Sheriff's Department (KCSO) provides police protection services to the unincorporated portions of the County. The KCSO's headquarters is located in Bakersfield and consists of 15 substations that provide patrol services to remote areas of Kern County, such as the desert and mountainous regions, as well as to other areas that need law enforcement services (KCSO, 2011).

The Mojave substation, located at 1771 Highway 58 in Mojave, would be the primary substation to service the AEWP area. The substation is 4 miles southeast of the AEWP site.

The KCSO created the Off-Highway Vehicle (OHV) Enforcement Team that is based out of the Ridgecrest Substation. However, deputies throughout the County are a part of the OHV Enforcement Team and can be deployed anywhere in Kern County, as needed. The OHV Enforcement Team's mission is to provide a law enforcement presence and patrol those remote areas of Kern County that are not readily accessible by normal means. The Kern County Desert area is host to hundreds of thousands of visitors during the off-highway vehicle season. Although the exact numbers are not available, it is estimated that more than 500,000 visitors in the East Kern area alone participate in outdoor activities policed by the Off-Highway Vehicle Enforcement Team. Off-highway vehicle activities occur on the AEWP site and in the Willow Springs and Rosamond areas, as well as in the surrounding areas including Mojave and Tehachapi. (KCSO, 2011)

Emergency Medical Services Division

The Kern County Emergency Medical Services Division (EMS) is the lead agency for the EMS system in Kern County. EMS is responsible for coordinating all system participants which includes the public, emergency service providers, and hospitals throughout the County. The department provides various training programs for EMS such as certification and recertification for local EMS personnel (EMS 2011).

The hospitals closest to the AEWP with emergency departments include the Tehachapi Valley Healthcare District located 14 miles west of the AEWP site in the City of Tehachapi, and the Antelope Valley Hospital and Lancaster Community Hospital, both located 27 miles south of the AEWP site in the City of Lancaster.

Ambulance and Hospitals

Kern County has 10 emergency medical service hospitals and eight ambulance providers (KC, 2011a).

Solid Waste

The Mojave-Rosamond Landfill at 400 Silver Queen Road is the closest waste disposal site, five (5) miles south of Mojave and one (1) mile east of Highway 14. The Mojave-Rosamond Landfill permits 42 tons of waste per day; however, it has exceeded the total estimated permitted capacity and is undergoing review for a possible expansion. It is scheduled to close December 2014 (CalRecycle, 2012a). The Tehachapi Sanitary Landfill is the second closest waste disposal site, located on Tehachapi Blvd. in Tehachapi. The Tehachapi Sanitary Landfill permits 1,000 tons of waste per day and is scheduled to close January 2014 (CalRecycle, 2012b).

3.11.1.5 Public Health

Existing Public Health Concerns

Current public health concerns of residents of rural Kern County are identified, as it relates to environmental health factors that could be potentially affected by the AEWP and alternatives. Vector-borne disease incidence as well as potential issues related to shadow flicker and electro-magnetic fields (EMF) are presented in this section. Information related to ambient air quality is presented in Section 3.2.

Disease Vectors

A disease vector is an insect or animal that carries a disease-producing micro-organism from one host to another. The Federal Insecticide, Fungicide and Rodenticide Act defines the term vector as:

> *…any organism capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including mosquitoes, flies, fleas, cockroaches, or other insects and ticks, mites or rats.*

The accumulation of organic wastes would act as attractors for various vectors. In addition any depressed areas, ponds, or drainage channels would provide areas for the breeding of mosquitoes.

Vector-borne diseases include infectious diseases transmitted to humans by vectors such as mosquitoes, ticks, fleas, lice, or rodents. The purpose of vector control is to decrease contact between humans and vectors through education, surveillance, and integrated pest management strategies. Surveillance is conducted primarily for the three most prevalent mosquito-borne viruses in California: West Nile virus (WNV), St. Louis Encephalitis (SLE), and Western Equine Encephalomyelitis (WEE) as discussed in additional detail below.

Mosquito Species of Concern

In Kern County, two species of mosquito are primary targets for suppression. These two species, *Culex pipiens quinquefasciatus* and *Culex tarsalis*, are potential vectors of encephalitis and WNV. Other species of mosquitoes exist in Kern County that can cause a substantial nuisance in surrounding communities, but the *Culex* mosquito is the primary vector species of concern.

Although the WNV can be transmitted by a number of mosquito species, Culex is the most common carrier. This disease is thought to be a seasonal epidemic that flares up in the summer and fall. WNV is spread when mosquitoes that feed on infected birds bite humans and other animals.

The encephalitis mosquito (*Culex tarsalis*) breeds in almost any freshwater pond. Birds appear to be the primary blood-meal hosts of this species, but the insect will also feed on domestic animals and humans (Bohart and Washino 1978). This species is the primary carrier in California of WEE, SLE, and California encephalitis, and is considered a significant disease vector of concern in the State.

The house mosquito (*Culex pipiens quinquefasciatus*) usually breeds in waters with a high organic material content. This species is often identified by its characteristic buzzing. Although its primary blood-meal host is birds, the house mosquito may also seek out humans. The house mosquito is a vector of SLE.

Mosquito Borne Diseases

Mosquitoes are of particular concern because of their abundance and distribution. In Kern County, mosquitoes are most abundant and active between May and October. Mosquitoes require standing water to breed and can be prolific in areas with standing water, such as wetlands.

Adult female mosquitoes can deposit eggs in a variety of aquatic habitats and other sources that contain water. The immature stages of each mosquito species develop in particular habitats. In general, there are four mosquito habitat groups: agricultural, industrial, domestic, and natural sources. Typical sites within these habitat groups include:

- Agricultural Sources: irrigated pastures, dairies, and orchards.
- Industrial Sources: sewage treatment ponds, flood plains, drain ditches.
- Domestic Sources: containers, debris in and around ponds, bird baths, pet watering dishes, animal troughs, septic tanks, catch basins, roadside ditches, leaky sprinkler systems, stagnant swimming pools.
- Natural Sources: wetlands, rain pools.

All species of mosquitoes require standing water to complete their growth cycle. Therefore, any standing body of water represents a potential mosquito breeding habitat. Although mosquitoes will typically stay close to suitable breeding habitat and blood-meal hosts, they are known to travel up to 10 miles under breezy conditions. The breeding period for mosquitoes depends on temperature but generally occurs in March through October.

Water quality also affects mosquito reproduction. Generally, poor-quality water (e.g., water with limited circulation, high temperature, and high organic content) produces greater numbers of mosquitoes than high-quality water (e.g., water with high circulation, low temperature, and low organic content). Typically, water bodies with water levels that slowly increase or recede produce greater numbers of mosquitoes than water bodies with water levels that are stable or that rapidly fluctuate.

In Kern County, the Kern Mosquito and Vector Control District is responsible for vector control; however, there is no established vector control district in the area of Kern County where the AEWP would be located.

Mosquitoes are known to be the carriers of many serious diseases. The mosquito genus *Anopheles* carries the parasite that causes malaria, which is the leading cause of premature mortality worldwide. Encephalitis-type diseases are also transmitted through mosquitoes, including Eastern equine encephalitis (EEE) and WEE, which occur in the United States where they cause disease in humans, horses, and some bird species. Both EEE and WEE are regarded as two of the most serious mosquito-borne diseases in the United States due to their high mortality rates. It is not known how long WNV has been in the U.S., but Centers for Disease Control and Prevention (CDC) scientists believe the virus has been in the eastern U.S. since the early summer of 1999, and possibly longer (CDC 2011).

WNV is the most important mosquito-borne disease affecting Kern County. In September 2002, the Kern County Department of Health formed a West Nile Virus Task Force and has subsequently released reports documenting cases, developed strategies to prevent the occurrence of WNV, and generated public education information such as information pamphlets. Statewide, there are 52 local agencies, including local Mosquito Abatement Districts and the California Department of Health Services Arbovirus Field Testing Stations, that work cooperatively to routinely conduct surveillance and control of mosquitoes and the diseases they transmit throughout California.

As of August 23, 2011, Kern County has reported 130 cases of WNV (CDC, 2011a). According to the CDC, the SLE virus is transmitted to humans by the bite of an infected mosquito. Most cases of SLE have occurred in eastern and central states. However, samples of mosquitoes have been submitted to the CDC from Kern County to test for the SLE virus (CDC, 2011b). WEE is a mosquito-borne zoonotic infection, primarily involving wild birds and the mosquito *Culex tarsalis*, that can produce acute central nervous system disease in infected horses and humans (LAWestVector, 2011). Samples of mosquitoes have been submitted to the CDC from within Kern County to test for the WEE virus (CDC, 2011c).

Flies

Nuisance flies have a life cycle comprised of an egg stage, three larval stages, a pupal stage, and an adult stage. Eggs are laid by a mature female fly onto a substrate appropriate for larval development. A single female can lay hundreds of eggs during her life. Nuisance fly larvae (grubs) are generally white in color and are blunt ended. They develop in wet substrates, especially dung pats and manure and wet or rotting feed, hay, and bedding straw, where they feed on food particles found on the substrate. Fly larvae are not capable of developing in truly aqueous habitats; they need wet, but not overly wet, substrates.

Within the confines of a pupal case, the developing fly will undergo further changes to become a winged adult fly that will eventually emerge from the pupal case and disperse from the site. The length of time required to complete the development from egg to adult is temperature dependent and may be as short as seven days during the summer months in California.

Some nuisance flies are blood feeders and can inflict a painful bite while feeding on animals or humans. Blood feeding (or biting) flies include the stable fly and horn fly. Other flies do not bite (non-biting flies), instead feeding on body secretions or liquefied organic matter. Non-biting flies include the house fly, face fly, and garbage fly.

Adult flies are generally active during daylight hours and inactive at night. Nuisance flies are known to disperse from their development sites into surrounding areas. However, the distance and direction of dispersal are not well understood. Non-biting nuisance fly species are likely to disperse further than those fly species that require animal blood meals. The habitat surrounding a breeding site will play a role in the distance of nuisance fly dispersal. Nuisance flies will likely disperse further in open habitats typical of rangeland and low agricultural crops than they will in urban or forested/orchard areas that contain substantially more vertical structure on which flies may rest and that provide shade and higher humidity on hot summer days.

Most nuisance flies are not known to disperse great distances. Studies using marked house flies show that 60 percent to 80 percent of house flies were captured within one mile of their release point; 85 percent to 95 percent were caught within two miles of the release site within the first four days after they were turned loose. A few flies have been shown to travel further, but in general, fly control efforts for a community problem are focused within one mile of the source.

Rodents

The accumulation of organic waste presents the potential for significant populations of mice and rats. Rodents can spread or accelerate the spread of disease from contaminated areas to uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. In addition, native and invasive mice provide a food

source that could attract wild predatory animals (e.g., skunks, foxes, coyotes, and stray dogs), which could pose other disease problems.

Mice are generally nocturnal and secretive animals with keen senses of taste, hearing, smell, and touch. They are small enough to enter any opening larger than one quarter of an inch. Mice prefer cereal grains, if available, but will eat garbage, insects, meat, and even manure. Although the life span of a mouse is only nine to twelve months, a female mouse can have five to ten litters per year with five or six young in each litter.

Rats are typically distinguished from mice by their size; rats are generally large muroid rodents, while mice are generally small muroid rodents. The muroid family is very large and complex, and the common terms rat and mouse are not taxonomically specific. The average lifespan of any given rat depends on which species is being discussed, but many only live about a year due to predation.

Both mice and rats reproduce at high rates, making early control important in minimizing the potential for infestation. Mice and rats do not consume large quantities of food but can cause significant economic damage due to physical structure damage and site contamination.

Valley Fever

Coccidioidomycosis, commonly known as Valley Fever, is primarily a disease of the lungs that is common in the southwestern U.S. and northwestern Mexico. Valley Fever is caused by the fungus *Coccidioides immitis*, which grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. These fungal spores become airborne when the soil is disturbed by winds, construction, farming, and other activities. In susceptible people and animals, infection occurs when a spore is inhaled. Valley Fever symptoms generally occur within 3 weeks of exposure. Valley Fever is not a contagious disease. Secondary infections are rare.

People working in certain occupations such as construction, agriculture, and archaeology have an increased risk of exposure and disease because these jobs result in the disturbance of soils where fungal spores are found. Valley Fever infection is highest in California from June to November. In addition, many domestic and native animals are susceptible to the disease, including dogs, horses, cattle, coyotes, rodents, bats, and snakes. Most Valley Fever cases are very mild. It is estimated that 60 percent or more of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention.

It is estimated that more than four million people live in areas where Valley Fever fungus is prevalent in the soils. According to the California Department of Public Health (CDPH), Kern County has a high incidence rate of Valley Fever, with 15.1 to 183 cases per every 100,000 people (CDPH, 2009). Soils that possess the potential to contain valley fever spores are typically dry, alkaline, semi-arid or arid soils. These types of soils could be located within the AEWP site (CH2MHILL, 2011f). However, the southern San Joaquin Valley is the major region of endemicity in California (CDPH, 2009).

Shadow Flicker

With the installation of WTGs as part of the AEWP, the AEWP may result in a phenomenon known as “shadow flicker”. Shadow flicker is the alternating change in light intensity that occurs when rotating WTG blades cast moving shadows on the ground or on structures. Shadow flicker effects may have the potential to cause seizures in certain epileptic individuals. An analysis of the AEWP’s potential shadow flicker affects can be found in Section 4.18, Visual Resources.

Wind Turbine Syndrome

Wind Turbine Syndrome (WTS) is a term that has been coined by pediatrician Dr. Nina Pierpont. According to Pierpont, wind turbines associated with wind farms can cause illness in certain individuals

due to the rotating blades, which creates constant low level noise and vibration. Symptoms that are believed to result from WTS are: sleep disturbance, headache, tinnitus (ringing in ears), ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia (rapid heart beating), irritability, problems with concentration and memory and panic episodes associated with sensations of internal pulsation or quivering, which arise while awake or asleep (Martin, 2010). The dose-response relationship between exposure to wind turbine noise/vibration and health effects is not known. The single clinical study reported a correlation between distance to large (1.5 to 3 MW) wind turbines and WTS, and suggested that symptoms are eliminated by siting wind turbines a minimum of 1.25 miles away from sensitive receptors. More research is needed to identify whether wind turbine noise and vibration may cause the reported symptoms.

Radiation from Geological Sources

According to the *Alta East Wind Project – Geologic Resources* report, prepared by CH2M Hill (CH2M Hill, 2010b), no geological uranium resources have been identified in the vicinity of the AEWP site.

High Pressure Transmission Lines

High-pressure transmission lines are used to transport natural gas via a network of mostly underground lines. There are no known such transmission lines within the AEWP's boundaries.

Electromagnetic Fields

Electromagnetic Fields (EMFs) are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and x-rays, among other energy forms. Electric and magnetic fields are common throughout nature and are produced by all living organisms. Concern over EMF exposure, however, generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems.

Commonly known human-made sources of EMF are electrical systems such as electronics, telecommunications, electric motors, and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most living environments, the level of such radiation plus background natural sources of EMF are low.

Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

Possible health effects associated with exposure to EMFs have been the subject of scientific investigation since the 1970s. Concern about EMF originally focused on electric fields; however, much of the recent research has focused on magnetic fields. Although the health effects of EMF remain uncertain, field intensity, transients, harmonics, and changes in intensity over time are some of the EMF characteristics that may need to be assessed to ascertain eventual human exposure effects. These characteristics may vary from power lines to appliances to home wiring and so may create different types of exposures. The exposure most often considered is intensity or magnitude of the field. Conducting carefully controlled experiments needed is costly and lengthy.

Reviews of the scientific literature conducted by the National Institute of Environmental Health Sciences, the National Research Council/National Academy of Sciences, the International Agency for Research on Cancer (a division of the World Health Organization), and the American Cancer Society from the 1990s through 2001 have consistently indicated insufficient evidence of an association between EMF exposure and adverse health effects in humans. The National Institute of Environmental Health Sciences (NIEHS, 1999) recognized published reports of associations between EMF and certain cancers, particularly

leukemia, but noted the lack of supporting evidence in the literature from animal or mechanistic studies. The National Research Council/National Academy of Sciences corroborated the findings of the National Institute of Environmental Health Sciences and concluded that EMF does not pose an unrecognized health hazard (NRC, 1999). The World Health Organization evaluated the carcinogenic risk to humans from static and extremely low frequency EMF and concluded that there was limited evidence of carcinogenicity in humans and less-than-sufficient evidence for carcinogenicity in animals (World Health Organization, 2001). The American Cancer Society (AMC, 1996) reviewed epidemiological studies of residential exposure to EMF and cancer and found little evidence to suggest an association between exposure and cancer.

Since 2001, further research concerning possible health effects associated with EMF has been consistent with earlier studies. For example, a report on this issue examined non-cancer effects—principally, adverse pregnancy outcomes—associated with EMF exposure and concluded that such studies have not indicated these effects (Feychting, 2005). On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, called the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public, and its report incorporated concerns expressed by the public. Its recommendations were filed with the CPUC in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993 to address public concern about possible EMF health effects from electric utility facilities (CPUC, 1993). The conclusions and findings included the following:

> *We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.*

This continues to be the stance of the CPUC with regard to establishing standards for EMF exposure. Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

Implementation of the AEWP would require the project proponent to demonstrate compliance with all Kern County setback requirements as set forth in 19.64.140 (Wind Energy - Development Standards and Conditions) of the Kern County Zoning Ordinance 19.64.140. Such setbacks would include restrictions in the development of the AEWP's construction corridors, including Kern County's setback requirements for any property lines, neighboring homes, utility corridors and rights-of-way, public access easements, local and County roads, and/or railroads. In accordance with the fencing requirements specified in Chapter 19.64 (Wind Energy (WE) Combining District) of the referenced ordinance, the installation of perimeter fencing would be required to secure the AEWP site, but not in areas where unauthorized access is precluded due to topographic conditions.

Wind Turbine Generator (WTG) Rotor Failure and Tower Integrity

Public safety issues related to wind energy generation facilities could arise from tower or rotor failure; however, most WTGs currently commercially available have been equipped with safety and engineering features to prevent excess rotor speed.

The WTGs considered for the AEWP would be equipped with safety and engineering features to prevent excess rotor speed, to minimize the risk of tower failure, and to maintain personnel health and safety. In addition, Kern County has established setback requirements for WTGs in Zoning Ordinance Section 19.64.140, which are discussed in Section 4.8.3.

3.11.1.6 Intentionally Destructive Acts

High-profile international and domestic terrorist attacks during the last two decades present a new and real threat to the safety and security of the people of the U.S., infrastructure, and resources. Intentional destructive acts, such as sabotage or terrorism, attacks against the AEWP and others could cause impacts to human health and the environment. In contrast to industrial hazards, collisions, and natural events, where people can estimate statistical probabilities of events based on historical data and information, it is not possible to accurately estimate the probability of an act of terrorism or sabotage. In general, the consequences of a sabotage or terrorist attack on a wind facility would be expected to be as difficult to predict as accidental and natural events covered in Sections 3.11.1.2 (Seismic Hazards) and 3.11.1.3 (Hazardous Materials).

3.11.2 Applicable Regulations, Plans, and Standards

3.11.2.1 Federal

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The AEWP would be located within the boundaries of the BLM's California Desert Conservation Area (CDCA). The CDCA, which covers 25 million acres of land, serves as the BLM's land use guide for management of these public lands (BLM, 2007). The BLM West Mojave Plan serves as a Habitat Conservation Plan and CDCA amendment (BLM, 2005b). A review of both the CDCA Plan and the West Mojave Plan indicated that no specific requirements regarding public health and safety were identified (BLM, 2007 and 2005b). For a discussion of Air Quality standards pertaining to the CDCA and West Mojave Plan, refer to Section 3.2, Air Quality.

U.S. Environmental Protection Agency (USEPA)

The USEPA was established in 1970 to consolidate in one agency a variety of Federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection. The USEPA's mission is to protect human health and to safeguard the natural environment - air, water, and land - upon which life depends. The USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, the USEPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

Comprehensive Environmental Response and Liability Act (CERCLA). Superfund Amendments and Reauthorization Act (SARA) of 1986 (42 USC Section 9601 et seq.)

The SARA amends CERCLA and governs hazardous substances. The applicable part of SARA for the AEWP is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides regulations primarily for planning, reporting, and notification concerning hazardous substances. Key sections of the law are:

- **Section 302** – Requires one time notification when extremely hazardous substances (EHSs) are present in excess of their threshold planning quantities (TPQs). EHSs and their TPQs are found in Appendices A and B to 40 Code of Federal Regulations (CFR) Part 355.
- **Section 304** – Requires immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released in excess of

its reportable quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.

- **Section 311** – Requires that either material safety data sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.

Clean Air Act (CAA) (42 USC 7401 et seq. as amended)

Regulations under the CAA are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store a Threshold Quantity (TQ) or greater of listed regulated substances to develop a Risk Management Plan (RMP), including hazard assessments and response programs to prevent accidental releases of listed chemicals.

Clean Water Act (CWA) (40 CFR 112)

The Spill Prevention, Control, and Countermeasures (SPCC) program under the CWA is designed to prevent or contain the discharge or threat of discharge of oil into navigable waters or adjoining shorelines**.** Regulations under the CWA require facilities to prepare a written SPCC Plan if they store oil and its release would pose a threat to navigable waters.

Toxic Substances Control Act (15 USC 2605)/Resource Conservation and Recovery Act (RCRA) (42 U.S. Code [USC] 6901 et seq.)/Hazardous and Solid Waste Act (HSWA)

The Federal Toxic Substances Control Act (1976) and the RCRA of 1976 established a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the HSWA, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

U.S. Department of Transportation (DOT) Hazardous Materials Transport Act (49 USC 5101)

The U.S. DOT, in conjunction with the EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S. DOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

Federal Aviation Administration (FAA), 49 CFR Part 77.13

The FAA regulates aviation at regional, public, private, and military airports. The FAA regulates objects affecting navigable airspace and structures taller than 200 feet. The U.S. and California Departments of Transportation also require the applicant to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 49 CFR Part 77.17, notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing any adverse impacts on the safe and efficient use of navigable airspace. Any structure that would constitute a hazard to air navigation, as defined in FAA Part 77, requires issuance of a permit from the California Department of Transportation's Aeronautics Program. The permit is not required if the FAA aeronautical study determines that the structure has no impact on air navigation.

Occupational Safety and Health Administration (OSHA), Title 29 CFR 1910

The OSHA's mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging contin-

ual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs.

National Weather Service (NWS)

Under extreme fire weather conditions, the NWS issues Red Flag Warnings for all affected areas. A Red Flag Warning means that any ignition could result in a large-scale damaging wildfire. The NWS region encompassed by the AEWP is the Los Angeles/Oxnard region. The following are the Red Flag Warning criteria for the Los Angeles/Oxnard region. For all zones except the Antelope Valley, dry fuels plus any one of the following: 1) relative humidity 15 percent or less with either sustained winds of 25 mph or greater, or frequent gusts of 35 mph or greater (for a duration of six hours or more); 2) relative humidity 10 percent or less for an extended period of time (for a duration of 10 hours or more; or, 3) widespread and/or significant dry lightning. For the Antelope Valley, dry fuels plus relative humidity 15 percent or less with sustained winds of 25 mph (for a duration of eight hours or more). (NWS, 2008)

3.11.2.2 State

Health and Safety Code, Section 25249.5 et seq.

Safe Drinking Water and Toxics Enforcement Act, Proposition 65. This law identifies chemicals that cause cancer and reproductive toxicity, provides information for the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. The Act is administered by California's Office of Environmental Health Hazard Assessment.

Health and Safety Code, Section 25270

Aboveground Petroleum Storage Act. Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the federal CWA. The law applies to facilities that operate a petroleum aboveground storage tank (AST) with a capacity greater than 660 gallons or combined ASTs capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare a SPCC plan.

Health and Safety Code, Section 25500 et seq.

This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local Certified Unified Program Agency (CUPA) and to report releases to their CUPA and the State Office of Emergency Services.

Health and Safety Code, Section 25531 et seq.

This code and the California Accidental Release Program (CalARP) regulate the registration and handling of regulated substances. Regulated substances are any chemicals designated as an extremely hazardous substance by the USEPA as part of its implementation of SARA Title III. Health and Safety Code Section 25531 overlaps or duplicates some of the requirements of SARA and the CAA. Facilities handling or storing regulated substances at or above TPQs must register with their local CUPA and prepare a RMP.

Health and Safety Code, Section 41700

This section states that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable

number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

CCR Title 8, Section 5189

Process Safety Management of Acutely Hazardous Materials. Requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While these requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act (HWCA)

The HWCA created the State hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the HWCA and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)

This program requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a CUPA. The Program Elements consolidated under the Unified Program are:

- Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a., Tiered Permitting),
- Aboveground Petroleum Storage Tank SPCC,
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know"),
- CalARP,
- Underground Storage Tank (UST) Program, and

- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

California Environmental Protection Agency (Cal/EPA)

The Cal/EPA was created in 1991, which unified California's environmental authority in a single cabinet-level agency and brought the Air Resources Board, State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards, Integrated Waste Management Board, DTSC, Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect and enhance the environment, to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substance Control (DTSC)

The DTSC is a department of Cal/EPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and looks for ways to reduce the hazardous waste produced in California. The DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code §65962.5 (commonly referred to as the Cortese List) includes the DTSC listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having underground storage tank leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

California Office of Emergency Services (OES)

In order to protect the public health and safety and the environment, the California OES is responsible for establishing and managing Statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies needs to be included in business plans in order to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3).

CCR Title 19, Public Safety, Division 2, OES, Chapter 4–Hazardous Material Release Reporting, Inventory, And Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum Statewide standards for HMBPs. These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous

materials stored, used, or disposed of in the State. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance,
- 55 gallons of a liquid,
- 200 cubic feet of compressed gas,
- A hazardous compressed gas in any amount, and
- Hazardous waste in any quantity.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

California Highway Patrol

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157-1157.8). Radioactive materials are restricted to specific safe routes for transportation of such materials.

California Public Utilities (CPUC) General Order (GO) 95: Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2006. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by rule 35, and inspection requirements, governed by Rule 31.2 are summarized below.

- **GO 95: Rule 35, Tree Trimming,** defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but less than 300,000 Volts. This requirement would apply to the AEWP transmission lines.
- **GO 95: Rule 31.2, Inspection of Lines,** requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

Public Resources Code (PRC) 4292, Powerline Hazard Reduction

PRC 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable

within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. AEWP structures would be primarily exempt due to their design specifications.

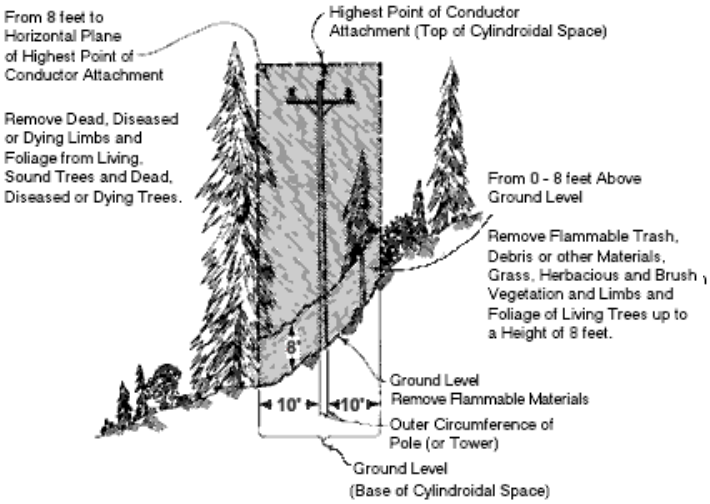
PRC 4293, Powerline Clearance Required

PRC 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110,000 volts or higher.

CCR Title 14, Section 1254

CCR 14 Section 1254 presents guidelines for minimum clearance requirements on non-exempt utility poles. The AEWP structures would be primarily exempted from the clearance requirements with the exception of cable poles and dead-end structures.

Figure 3.11-1.
CCR Title 14 Section 1254 Minimum Clearances



As shown in Figure 3.11-1 (also Figure 4.8-1 of CCR 14 Section 1254), the firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14 CCR 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire
- From 0 to 2.4 m (0- to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

3.11.2.3 Local

Kern County General Plan (KCGP) and Applicable Specific Plans

The AEWP boundaries are located predominately within the KCGP with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures related to public health and safety, as

discussed below. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to noise.

Kern County General Plan

Chapter 1. Land Use, Open Space, and Conservation Element

Section 1.4 Public Facilities and Services

Policies

- **Policy 1.** New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.
- **Policy 6.** The County will ensure adequate fire protection to all Kern County residents.
- **Policy 7.** The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

- **Implementation Measure L.** Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

Section 1.10 General Provisions

Goals

- **Goal 1.** Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving viable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Section 1.10.1 Public Services and Facilities (General Provisions Element)

Policies

- **Policy 9.** New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure that it generates and upon which it is dependent.
- **Policy 15.** Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the Project.
- **Policy 16.** The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to ensure the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Chapter 2. Circulation Element – Section 2.5.2 Airport Land Use Compatibility Plan (ALUCP)

Goals

- **Goal 1.** Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.

Policies

- **Policy 2.** To the extent legally allowable prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.

Implementation Measures

- **Implementation Measure A.** Review discretionary land use development applications within the airports influence area and the military base operating area as shown in the Airport Land Use Compatibility Plan (ALUCP) for consistency.
- **Implementation Measure B.** Coordinate and cooperate with airport operators, the County Department of Airports, the California Department of Transportation, Division of Aeronautics, affected cities, Edwards Air Force Base, NAWS China Lake, and the U.S. Department of Defense on ALUCP, review of land use applications, public education and encroachment issues.

Chapter 4. Safety Element

Goals

- **Goal 1.** Minimize injuries and loss of life and reduce property damage.
- **Goal 2.** Reduce economic and social disruption resulting from earthquakes, fire, flooding, and other geologic hazards by assuring the continuity of vital emergency public services and functions.
- **Goal 5.** Ensure the availability and effective response of emergency services following a catastrophic event.
- **Goal 7.** Ensure that adequate emergency services and facilities are available to the residents of Kern County through the coordination of planning and development of emergency facilities and services.

Policies

- **Policy 2.** Those hazardous areas, identified as unsuitable for human occupancy, are guided toward open space uses, such as agriculture, wildlife habitat, and limited recreation.
- **Policy 3.** That the County government encourage public support of local, State, and federal research programs on geologic, fire, flood hazards, valley fever, plague, and other studies so that acceptable risk may be continually reevaluated and kept current with contemporary values.

Implementation Measures

- **Implementation Measure A.** All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.
- **Implementation Measure C.** Require detailed site studies for ground shaking characteristics, liquefaction potential, dam failure inundation, flooding potential, and fault rupture potential as background to the design process for critical facilities under County discretionary approval.

Capital Improvement Plan (CIP)

The changing fiscal landscape in California during the past 30 years has steadily undercut the financial capacity of local governments to fund infrastructure. Faced with these trends, the County has adopted a policy of "growth pays its own way" through use of a public facilities mitigation program. The primary policy objective of this program is to ensure that new development pays the capital costs associated with growth.

In 2008, the County adopted a CIP that identifies the best current understanding of the public facilities that will be needed to accommodate new development anticipated through 2030. The CIP further identified appropriate existing facility demand standards to be used as a basis for estimating future facility

needs and level of service. The adopted CIP includes a summary of proposed service levels for the included facilities and a conceptual list of planned projects, upon which the CIP was based. The scope of services includes: parks, libraries, sheriff (public protection and investigation), fire, animal control, public health, landfill/transfer stations, and general government. Roads and sewer costs and impacts are not part of this program.

Continued growth within the County and the associated impacts resulting from that growth have increased the demands to Countywide public services and have made it difficult to not only implement and fund many of those facilities identified within the CIP, but maintain existing public service demand standards as growth occurs. In short, despite the increase in property taxes generated as a result of the AEWP and other similar projects within the County, public facility impacts are still underfunded and unable to maintain existing and adopted facility standards.

The purpose of the Public Facilities Mitigation Program is to identify impacts on public services and identify the monetary CEQA mitigation necessary to meet the facilities associated with that growth. The following categories have been identified to help determine which specific public needs are impacted by the AEWP.

- Countywide Public Protection Facilities;
- Sheriff Patrol and Investigation Facilities;
- Library Facilities;
- Animal Control Facilities;
- Park Facilities;
- Fire Facilities;
- Waste Management Facilities;
- Public Health Facilities; and
- General government Facilities.

Chapter 4.6. Urban Fire (Safety Element)

Hazard Identification

- Access and Evacuation Routes - Good planning principles, as well as existing policies and laws, dictate that all developments must be planned with circulation routes that will assure safe access for fire and other emergency equipment. The circulation routes must include secondary means of ingress and egress, consistent with topography, to meet emergency needs.
- The general circulation routes are provided throughout the County by federal, State, and County-maintained road systems which are adequate for access and evacuation. State and County laws regulate the standards for new public circulation routes.
- Private circulation routes that are not maintained by the State or County are subject to the standards set forth in Kern County Ordinance No. G-1832.
- Clearance of Vegetative Cover for Fire Control - In 1963 the State of California enacted the Public Resources Code clearance law. This is a minimum Statewide clearance law of flammable vegetative growth around structures, especially in brush- and tree- covered watershed areas. The enactment of a local ordinance is necessary where more restrictive fire safety clearance measures are desirable to meet local conditions.
- Fuel Breaks and Firebreaks - Fuel breaks and/or firebreaks separating communities or clusters of structures from the native vegetation may be required. Such fuel breaks may be “greenbelts,” as all vegetation need not be removed but thinned or landscaped to reduce the volume of fuel.

- All fuel and firebreaks are required to meet the minimum design standards of the Kern County Fire Chief.
- The Fire Department's Chief may require a fire plan for a development during the critical fire season. This plan should reflect the proposed course of action for fire prevention and suppression.
- The parcel size and setback distances of buildings placed thereon should be such that adequate clearance of flammable vegetation cover may be performed within the limits of the owner's parcel of land.
- Should the owner of a property fail to apply the required firebreak clearance, following proper notice, the County may elect to clear the firebreak vegetation and make the expense of the clearing a lien against the property upon which the work was accomplished.
- Hazardous Fire Area - The Hazardous Fire Areas consists mainly of wildlands, which are mountain and hill land in an uncultivated, more or less natural state, covered with timber, wood, brush, and grasslands. This area includes some urban influence and agricultural use, such as exists around Isabella Lake and the Kern River, Woody/Glennville, Tehachapi/Cummings Valley, and Lebec/Frazier Park/Lake of the Woods.
- The Kern County Hazardous Fire Area was established by an amendment to the Uniform Fire Code, Section 1.49H under Section 4016 of the Kern County Ordinance Code.
- The boundaries of the Hazardous Fire Area are determined and publicly announced before the start of each annual "fire season" and is normally the period from April 15 to December 1 of each year, except when the Fire Chief extends this period.
- In implementing their Fire Prevention Program, Fire Department personnel periodically inspect the areas around all buildings for accumulations of flammable material and closure of openings of vacant buildings.

Policies

- **Policy 1.** Require discretionary projects to assess impacts on emergency services and facilities.
- **Policy 2.** The County will encourage the promotion of public education about fire safety at home and in the work place.
- **Policy 3.** The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.
- **Policy 4.** Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.
- **Policy 6.** All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

- **Implementation Measure A.** Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Chapter 5 Energy Element – Section 5.4.2 Wind Energy Development

Goal

- To promote the safe and orderly development of wind energy as a clean method of generating electricity while providing for the protection of the environment.

Policies

- **Policy 4.** The County shall work with the wind energy industry to maximize electrical potential while assuring that military flight operations, communication facilities and visual conflicts for neighboring property owners are addressed.

Mojave Specific Plan

Chapter 3, Land Use Element

Objectives

- **Objective 3.6.** Ensure that public services and utilities are provided commensurate with established needs and projected growth.

Policies

- **Policy 3.6.1.** Approve new commercial, residential, and industrial projects only when needed public facilities and services can be provided without additional cost to established service users and the county residents.
- **Policy 3.6.2.** Coordinate with the Mojave Public Utility District, County Sheriff's Department, County Library Department and County Fire Department to ensure sufficient services are provided to community residents and businesses.

Implementation Measures

- **B.1.** Achieve a Variety of Land Uses. Achieve a variety of land uses by evaluating any future amendments to this Plan with the goals and policies of the Mojave Specific Plan and compatibility with the Airport Land Use Compatibility Plan.

Chapter 4, Conservation Element

Objectives

- **Objective 4.1.** Provide sufficient water to meet the existing and projected needs of the community, while emphasizing conservation goals.

Policies

- **Policy 4.1.1.** Require amendments to the Plan to show that sufficient water, including fire flow, exists to serve the proposed project(s) without impacting service to existing uses or resulting in long-term decline and overdraft of groundwater sources.

Kern County ALUCP – Section 1.0 General Applicability

Section 1.7.1(c). Prior to the approval of a proposal involving any type of land use development, as stated in Section 1.6.1, or other review as required by a Specific Plan, specific findings shall be made that such development is compatible with the training and operational missions of the military aviation installations. Incompatible land uses that result in significant impacts on the military mission of Department of Defense installations or to the Joint Service Restricted R-2508 Complex that cannot be mitigated, shall not be considered consistent with this plan.

Kern County Zoning Ordinance (Title 19)

Chapter 19.08 Interpretation and General Standards. This section restricts the height of structures or buildings to the maximum permitted heights shown in Figure 19.08.106 unless the military authority responsible for operations in that flight area first provides the planning director with written concurrence that the height of the proposed structure or building would create no significant military mission impacts.

The entire AEWP site is located within an area on Figure 19.08.106 shown as yellow (review required for all structures over 500 feet). Without military review, those structures falling within the yellow zone would be limited to 500 feet above ground elevation.

Chapter 19.64 Wind Energy (WE) Combining District. The WE Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to hazards and hazardous materials issues related to the AEWP.

Section 19.64.140 Development Standards and Conditions. This section of the Zoning Ordinance sets forth setback requirements for WTGs, requires nonreflective paint on WTGs, and specifies security fencing requirements. The setback requirements are listed below.

1. **Setback Where Adjacent Parcels Contain Less Than Forty (40) Acres.** A minimum wind generator setback of two (2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or 500 feet, whichever is less, shall be maintained from exterior project boundaries where the project site is adjacent to existing parcels of record which contain less than forty (40) acres and are not zoned WE Combining District.

   The Planning Director may allow a reduction in this setback, not to exceed a minimum setback of one (1) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) if a letter of consent from the owner(s) of record of adjacent parcels is filed with the Kern County Planning and Community Development Department.

2. **Setback Where Adjacent Parcels Contain Forty (40) Acres or More.** A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or 500 feet, whichever is less, shall be maintained from all exterior project boundaries.

   The Planning Director may allow a reduction or waiver of this setback requirement in accordance with both of the following provisions:

   a. The project exterior boundary is a common property line between two (2) or more approved wind energy projects or both properties are located within the WE District; and

   b. The property owner of each affected property has filed a letter of consent to the proposed setback reduction with the Planning Director.

3. **Setback From Off-site Residence(s) on Adjacent Parcels.** In all cases, regardless of parcel area, a minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blades) or 500 feet, whichever is greater, shall be maintained from any off-site residence.

   The Planning Director may allow a reduction in this setback, not to exceed a minimum setback of one (1) times the overall machine height, if a letter of consent from the owner(s) of record of the adjacent parcel is filed with the Planning Director.

4. **Project Interior Wind Generator Spacing.** Wind generator spacing within the project boundary shall be in accordance with accepted industry practices pertaining to the subject machine.

5. **Setback From On-site Residences and Accessory Structures Designed for Human Occupancy.** A minimum wind generator setback of one (1) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any on-site residence or accessory structure designed for human occupancy.

6. **Setback from Public Highways and Streets, Public Access Easements, Public Trails, and Railroads.** A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade)

shall be maintained from any publicly maintained public highway or street. A minimum wind generator setback of one (1) times the overall machine height shall be maintained from any public access easement or railroad right-of-way. A minimum wind generator setback of 150 feet shall be maintained from the outermost extension of any blade to any public trail, pedestrian easement, or equestrian easement.

Section 19.64.150 Wind Turbine Maintenance and Abandonment. A. Except for maintenance periods, wind turbines shall be maintained in an operational condition. A turbine or group of turbines seeking, but unable to obtain transmission service or a power purchase agreement and out of service for that reason, shall be considered to be in a maintenance period provided such wind turbines are otherwise viable by general industry practices.

B. Any wind turbine not in operational condition for a consecutive period of twelve (12) months shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and turbine owner, as well as the project operator, by the County. Within this sixty- (60-) day period, the property owner, turbine owner, or project operator may provide the Planning Director with a written request and justification for an extension for an additional twelve (12) months.

   The Planning Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of this title. In no case shall the Planning Director authorize an extension beyond two (2) years from the date the wind turbine was deemed abandoned without requiring financial assurances to guarantee the removal of the wind turbine, and that portion of the support structure lying above the natural grade level, in the form of a corporate surety bond, irrevocable letter of credit, or an irrevocable certificate of deposit wherein the County is named as the sole beneficiary. In no case shall a wind turbine, which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the wind turbine was first deemed abandoned.

C. If the property owner fails to remove an abandoned wind turbine within the time frame specified above, the County may remove the structure(s) at the property owner's expense and lien the property to recover all enforcement and removal costs; however, the County shall first notify the property owner of its intent to remove the structure(s) in accordance with this section in writing at least thirty (30) days prior to removing said structure(s). The County shall not issue any grading or building permits for any new development on the subject property until any such lien has been paid in full.

Other Applicable Kern County Plans/Documents

Kern County Multi-Hazard Mitigation Plan. The purpose of hazard mitigation and the plan is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in Kern County, California. This plan has been prepared to meet the Disaster Mitigation Act of 2000 requirements. The plan and planning process lays out the strategy that will enable Kern County to become less vulnerable to future disaster losses.

Kern County Hazardous Waste Management Plan. In response to the growing public concern regarding hazardous waste management, State Assembly Bill 2948 (CalRecycle, 2009) enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction.

The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the State Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the Kern County General Plan in 2004 as permitted by Health and Safety Code Section 25135.7(b), and thus must be consistent with all other aspects of the Kern County General Plan.

The Hazardous Waste Plan provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated cities, County, and State and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to effect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to equitably site needed hazardous waste management facilities; to promote on-site source reduction, treatment, and recycling; and to provide for the collection and treatment of small quantity hazardous waste generators. An important component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and State hazardous waste regulations. The siting criteria and any subsequent environmental documentation required pursuant to the CEQA would also ensure the mitigation of adverse impacts associated with the siting of any new hazardous waste facility.

3.12 Recreation

The following discussion addresses existing recreational resources within the Alta East Wind Project (AEWP) area, and describes existing laws and regulations relevant to those resources. The affected environment for this analysis describes "baseline" conditions, or existing environmental conditions that contribute to recreational resources at the time of publishing the Draft Plan Amendment (PA), and Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR). For the purposes of this analysis, the recreation study area has been defined as the area within 16 miles of the proposed AEWP site (refer to Figure 3.11-1 in Appendix A). This is an appropriate study area for recreation because it captures all major recreation resources (refer to Table 3.11-1 below) that contribute to baseline conditions and could potentially be affected by activities related to the proposed AEWP.

3.12.1 Environmental Setting

3.12.1.1 Recreation Resources on the Project Site

Passive recreational use of BLM lands is known to occur in this area (CH2MHILL, 2011f). Recreation activities on the AEWP site primarily include off-highway vehicle touring. The Middle Knob Motorized Access Zone includes two designated routes that would traverse the AEWP site, and numerous routes that would be adjacent or in the immediate vicinity of the project site. Figure 3.11-2 in Appendix A shows the network of route designations.

3.12.1.2 Recreation Resources Surrounding the Project Site

The AEWP is located within the northern portion of the Antelope Valley within Kern County. Kern County offers many recreational opportunities, including camping, hiking, horseback riding, boating and water skiing, bird watching, picnicking, and scenic viewing. Regional Recreational Areas are described in Table 3.12-1 and are further described below.

Table 3.12-1. Regional Recreation Areas

Recreation Area	Jurisdiction/ Administration	Distance from Project Site (miles)	Acreage	Allowed Uses and Facilities
Middle Knob Motorized Access Zone	BLM	On-site		OHV use, camping, hiking, hunting
Middle Knob ACEC	BLM	Adjacent to northwest boundary of Project site		OHV use, camping, hiking, hunting
Horse Canyon ACEC	BLM	2	1,530	OHV use, camping, hiking, hunting
Mojave West Park	Local – KCPR	2.5		Picnic area, ballfield
Mojave East Park	Local – KCPR	4		Picnic area, ballfield
Camelot Golf Course	Local/Private	4.5		Golf
Tomo-Kahni SHP	State	5		Cultural site, walking tours
Jawbone Canyon OHV	BLM	11	+7,000	OHV use, camping, hiking, hunting during established hunting seasons
Central Park/Well's Park	Local – TVRPD	11	5	Picnic tables, playground, gazebo, activity center

Table 3.12-1. Regional Recreation Areas

Recreation Area	Jurisdiction/ Administration	Distance from Project Site (miles)	Acreage	Allowed Uses and Facilities
West Park	Local – TVRPD	11.5	13	4 softball fields, playground, picnic pavilion, activity center
Jawbone/Butterbredt ACEC	BLM	12.5	187,486 acres; 133-mile route system	OHV use, bird-watching; rock-climbing, camping
Meadowbrook Park	Local – TVRPD	13	8	Dog park, 3 baseball fields, playground, picnic pavilion
Fremont-Kramer DWMA ACEC	BLM	13.5		OHV use, camping, hiking, hunting
Golden Hills Elementary School	Local – TVRPD	13.5		Basketball, baseball, playground, open field
Central Park	Local – California City	13	80	Multi-purpose activity center, senior center, swimming pool, tennis, handball
Golden Hills Golf Course	Local – Private	14		Golf
Red Rock Canyon State Park	State	18		OHV use, equestrian use, camping, hiking

Source: BLM, 2005c, 2005d, 2011e, 2011f; CA City 2011; CSP 2011a, 2011b; KCPR 2011a, 2011b; TVRPD 2011a, 2011b, 2011c.

Local

The Kern County Parks and Recreation Department operates and maintains 40 neighborhood parks throughout the County, as well as several public buildings that also are used for recreational purposes. The neighborhood parks closest to the AEWP area are the Mojave West and Mojave East Parks, located within the unincorporated town of Rosamond, These parks are located 2.5 miles south and 4 miles southeast of the AEWP boundary, respectively. The Willow Springs International Motorsports Park is located 15 miles south of the AEWP boundary.

The Kern County Parks and Recreation Department operates and maintains eight regional parks (Buena Vista Aquatic Recreational Area, Greenhorn Mountain Park, Leroy Jackson Park, Kern River County Park, Lake Isabella, Lake Woollomes, Metro Recreation Center, and Tehachapi Mountain Park). These parks provide more than 19,422 acres of parkland for recreational purposes. The Tehachapi Mountain Park is the closest regional park to the AEWP site and is located 15 miles west of the project boundary. Tehachapi Mountain Park is 5,000 acres and offers a variety of activities, family campsites, two group camps with cabins (Tehachapi Mountain Camp and Sierra Flats), hiking trails, nature trails, equestrian trails, and a corral.

State

The California State Parks Service owns, maintains, and operates one State park (Red Rock Canyon), two State historic parks (Fort Tejon and Tomo-Kahni), and one State reserve (Tule Elk) in Kern County. All of these parks are well over 10 miles away, with the exception of the Tomo-Kahni State Historic Park, which is located five (5) miles northwest of the AEWP site.

National Parks and Trails

The U.S. Department of Agriculture (USDA) Forest Service oversees the Pacific Crest Trail (PCT), which is an international hiking trail that extends from Canada to Mexico through California, Oregon, and Washington. The PCT in this area is popular for hikers and equestrians who want to experience the scenic trail and wind farms (Gipe 2009a). The trail goes through various elevation changes as it passes through high and low desert, old-growth forest, and arctic-alpine country. The Cameron Ridge segment of the Pacific Crest Trail (PCT) passes northwest of the AEWP area, north of SR 58. The PCT comes closest to the AEWP in the southeastern corner of Section 30, T 32S R 35E, and passes within one mile of the project at this location. The roads on the AEWP site could not be used to access the trail directly; however, Cameron Road can be used to access the trail to the west of the AEWP site.

Several national parks are located in California's Central Valley and southern desert region, which are accessible from Kern County, although a significant distance away. These include Sequoia National Park, Death Valley National Park, and Mojave National Preserve.

Wilderness Areas

There are no designated wilderness areas within the vicinity of the AEWP site. Bright Star Wildness is the closest BLM-designated wilderness area, which is located 23.5 miles north of the AEWP site.

Areas of Critical Environmental Concern

The BLM uses the Area of Critical Environmental Concern (ACEC) designation to highlight public land areas where special management attention is necessary to protect and prevent irreparable damage to: important historical, cultural, and scenic values; fish or wildlife resources; or other natural systems or processes.

The ACEC designation may also be used to protect human life from natural hazards. The BLM identifies, evaluates, and designates ACECs through its resource management planning process. Allowable management practices and uses, mitigation, and use limitations, if any, are described in the planning document.

Middle Knob ACEC. The Middle Knob ACEC is managed by the BLM, comprises 20,511 acres, and is designated as an ACEC because of its significant biological, which include several sensitive species, including Kern buckwheat, flax-like monardella, and various raptors (BLM, 20011b). The proposed AEWP would be located adjacent to the southern boundary of this ACEC and would be potentially visible from this special land use area.

Horse Canyon ACEC. The Horse Canyon ACEC is managed by the BLM under the Caliente Resource Management Plan, and consists of 1,530 acres designated as an ACEC because of its significant natural, cultural and historic resources, including the following: the Horse Canyon pictograph site and Creation Cave; the extensive village site near Sand Canyon and the ethnographic village site known as "Ma a puts"; the traditional cultural and religious values associated with an aboriginal trail and geographic locations within the ACEC; and paleontological resource values that include vertebrate fossils and primitive fauna (BLM, 2007). The proposed AEWP would be located two miles northeast of this ACEC and would be potentially visible from this special land use area.

3.12.2 Applicable Regulations, Plans, and Standards

3.12.2.1 Federal

Federal Land Policy and Management Act of 1976

The Federal Land Policy Management Act (FLPMA) establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public

lands. In particular, the FLPMA's relevance to the AEWP is that Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy. Under the FLPMA, the BLM is responsible for the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and that takes into account the long-term needs of future generations for renewable and non-renewable resources. Outdoor recreation is one of the diverse resources uses of BLM-administered lands recognized by FLPMA.

California Desert Conservation Area Plan

The 25 million-acre CDCA Plan Area contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. Approximately 10 million acres of the CDCA public lands are administered by the BLM.

The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of the Multiple-Use Class (MUC) guidelines for a given resource and its associated activities. The CDCA Plan defines MUCs for BLM-managed lands in the CDCA, which includes the land area encompassing the AEWP site.

West Mojave Plan – Middle Knob Motorized Access Zone

Appendix R (Motorized Vehicle Access Route Designation) of the West Mojave Plan designated subregions for motorized vehicle access networks that are outside of wilderness areas, open areas, and ACECs. The northeast portion of the AEWP site includes two designated routes within the Middle Knob Subregion, portions of routes MK0028 and MK0029 in Section 28, portions of MK0029 in Section 26.

National Trails System Act of 1968

The National Trails System Act of 1968 (Public Law 90-543), was passed by Congress in 1968 to create a series of trails "to promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation." The Act authorized National Scenic Trails as well as National Recreation Trails and the connecting-and-side trails. National Scenic Trails are established to provide access to "spectacular natural beauty and to allow the pursuit of healthy outdoor recreation" and "extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." In addition, the 1968 act also authorized creation of the PCT as a National Scenic Trail. As Congressionally-established long-distance trails, each trail is administered by a federal agency, such as by the U.S. Forest Service for the PCT.

Pacific Crest Trail Planning Criteria

The Pacific Crest National Scenic Trail Comprehensive Plan (U.S. Forest Service, 1982) provides guidelines and criteria for design and location of the PCT. Specifically, these guidelines state that the most desirable location will avoid unattractive roads, mining areas, power and telephone lines, commercial and industrial developments, fences, and other features incompatible with the natural condition of the trail, and with its use for outdoor recreation. Where the trail encounters such developments, it should be located so as not to adversely affect, or conflict with, the purpose of the development. Natural vegetation, topography, or natural plantings shall be used, where possible, to screen objectionable features from the view of the trail user.

3.12.2.2 State

There are no state regulations that are applicable to recreational resources within the AEWP site.

3.12.2.3 Local

The AEWP boundaries are located predominately within the Kern County General Plan (KCGP) with portions within the Mojave Specific Plan. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures that are general in nature and not specific to development such as the project. Therefore, they are not listed below, but, as stated in Chapter 2, Introduction, all policies, goals, and implementation measures in the KCGP are incorporated by reference. The AWEP site is also within the boundaries of the County's Cache Creek Interim Rural Community Plan, which does not include goals or policies related to recreation resources.

Kern County Zoning Ordinance

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to recreation issues related to the AEWP.

Chapter 19.64 Wind Energy (WE) Combining District

19.64.140 Development Standards and Conditions

Setback From Public Highways and Streets, Public Access Easements, Public Trails, and Railroads. A minimum wind generator setback of one and one-half (1 1/2) times the overall machine height (measured from grade to the top of the structure, including the uppermost extension of any blade) shall be maintained from any publicly maintained public highway or street. A minimum wind generator setback of one (1) times the overall machine height shall be maintained from any public access easement or railroad right-of-way. A minimum wind generator setback of one hundred fifty feet (150) shall be maintained from the outermost extension of any blade to any public trail, pedestrian easement, or equestrian easement.

3.13 Social and Economic Setting

This section describes the social and economic background and existing conditions of areas within a one-hour commute vicinity of the Alta East Wind Project (AEWP). As shown in Figure 2-1 of Appendix A, the AEWP site is located in Kern County (County), near the City of Tehachapi and the unincorporated Community of Mojave. As discussed in Section 4.12, it is assumed construction and operation workers for the AEWP would commute to the site from within the one-hour commute area, which includes Kern County and areas of the Antelope Valley portion of Los Angeles County and small communities in northwest San Bernardino County.

Sources of information and data provided in this section include but are not limited to the Kern County General Plan and Housing Element, the 2000 Regional Housing Assessment Plan, and demographic information from the California Department of Finance (DOF), the California Economic Development Department (CEDD), the U.S. Census Bureau 2010 Census, and the U.S. Bureau of Labor Statistics (BLS).

3.13.1 Environmental Setting

Regional and Local Population Trends

With an area of 8,202 square miles, Kern County is the third largest county in California. Because of its size, the Kern County Housing Element divides the County into nine (9) subareas. The AEWP site would be located in the following two (2) subareas:

- **Tehachapi Subarea.** The Tehachapi subarea encompasses 1,264 square miles, and had a population of 33,077 in 2006 with 21,098 residents in its unincorporated areas. Within this subarea, the City of Tehachapi is the only incorporated city, which is located seven (7) miles north of the AEWP site, and the unincorporated communities within the Tehachapi subarea include Golden Hills, Stallion Springs, Bear Valley Springs, Cummings Valley, Alpine Forest and Old Town, none of which are in the vicinity of the AEWP site.
- **Antelope Valley Subarea.** The Antelope Valley subarea encompasses 1,381 square miles, and had a population of 43,278 in 2006 with 30,619 residents in its unincorporated areas. This subarea includes the incorporated California City and the unincorporated Communities of Boron and North Edwards, none of which are in the vicinity of the AEWP site. However, the AEWP site borders the unincorporated Communities of Mojave, Willow Springs and Rosamond.

Existing developments within and surrounding the AEWP area include scattered residences, off-highway vehicle trails, ROWs for underground pipelines, underground portions of the Los Angeles Aqueduct, Southern California Edison (SCE) electric transmission lines, Union Pacific Railroad (UPRR) railroad siding (a short stretch of railroad track to store rolling stock or enable trains on the same line to pass), and a Los Angeles Department of Water and Power (LADWP) electric transmission line easement. The Cameron Ridge segment of the Pacific Crest Trail passes northwest of the AEWP area, north of SR 58.

In July 1, 2000, the County's population was 664,993 persons. Kern County's total population as of January 1, 2011 was 846,883 persons (DOF, 2011). Kern County has experienced significant migratory growth in the last decade, and the natural increase in population has remained fairly constant. However, due to economic conditions, population trends have been reverting back to historic trends, which are three percent growth per year. The County's population is projected to be over 1,000,000 by July 1, 2020 (DOF, 2011a; DOF, 2011b).

Regional and Local Housing Trends

Housing as a whole in Kern County has grown and continues to grow at a fairly rapid pace. In 2000, Kern County had a total of 231,564 housing units, and in 2009, there were 274,620 units (U.S. Census 2011). In 2005 through 2009, Kern County had a total of 267,000 housing units, 10 percent of which were vacant. Of the total housing units, 74 percent were in single-unit structures, 18 percent were in multi-unit structures, and eight percent were mobile homes. Thirty-one percent of the housing units were built since 1990. (U.S. Census 2011)

3.13.2 Economic Conditions

Regional and Local Employment Trends

Kern County's economy as a whole is based on agriculture, energy, oil, aerospace, healthcare, tourism and transportation and warehousing (KCEDD, 2010). Despite this economic diversification, the overall performance of the County has been mixed in recent years compared to the State and other counties. Further, the agricultural sector consists largely of lower paying and often-seasonal employment, which limits the positive multipliers within the economy. However, key industries in the County, like value-added agriculture, are regional and national leaders, and new ones, such as transportation, renewable energy, logistics and warehousing have emerged. Within the project one-hour commute area, the economic and employment base is diverse, consisting of large land areas currently being developed for renewable energy, as well as both the smaller rural communities such as Lebec, Llano, Adelanto, Little Lake, Randsburg/Johannesburg, Hinkley, and Ridgecrest along with larger urban areas such as Bakersfield. The County also has distinctive assets related to renewable energy and aerospace, two areas with significant potential to expand and develop. Wind, solar, biomass and geothermal are established forms of locally generated renewable energy.

3.13.2.1 Employment and Economy

From a regional perspective, the County had a labor force of 373,600 persons and an unemployment rate of 15.5 percent (15.5%) in July 2011 (EDD, 2011a). Of the 315,700 employed persons within the County, 224,000 were employed in non-farm industries (EDD, 2011a). Based on the current labor information, over the last decade the County's labor force increased by 25.3 percent (25.3%); however, recently unemployment rates have grown due to deteriorating economic conditions across the country (EDD, 2011a). In comparison, California had a labor force of just over 18.0 million with a 12.4 percent (12.4%) unemployment rate in July 2011 (EDD, 2011b).

Several industries provide employment opportunities in Kern County. Table 3.13-1 summarizes the industries in Kern County as well as the percent of the County population that each industry employs based on 2000 U.S. Census data, which is the most recent available data.

Table 3.13-1. Industries in Kern County

Industry	Percent of Population
Agriculture, forestry, fishing, hunting, and mining	12.3
Construction	6.9
Manufacturing	6.0
Wholesale trade	4.8
Retail trade	10.7
Transportation, warehousing, and utilities	5.3
Information	1.8

Table 3.13-1. Industries in Kern County

Industry	Percent of Population
Finance, insurance, real estate, and rental and leasing	4.8
Professional, scientific, management, administrative, and waste management services	7.6
Educational, health, and social services	19.6
Arts, entertainment, recreation, accommodation, and food services	7.1
Other services (except public administration)	5.0
Public administration	8.2

Source: U.S. Census Bureau 2000.

As noted in Table 3.13-1, educational, health, and social services; agriculture, forestry, fishing, hunting, and mining; and retail trade industries provided the greatest amount of County employment opportunities in 2000. The top three fastest growing occupations between 2008 and 2018 are projected to be home health aides, medical scientists (except epidemiologists), physical therapists, and Network Systems and Data Communications Analysts (CA EDD, 2010).

Table 3.13-2, below, summarizes the employment projections between 2008 and 2018 by industry type within the Bakersfield Metropolitan Statistical Area (MSA). Metropolitan Statistical Areas are geographic entities defined by the U.S. Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. An MSA contains a core urban area of 50,000 or more population and consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core (U.S. Census, 2011). The Bakersfield MSA has a population of 800,458 and provides the best statistical area encompassing the communities located within the one-hour commute area. By looking at other surround MSA's (Los Angeles MSA for example), data would not accurately reflect the workforce and socioeconomic conditions of that population assumed within the one-hour commute area. Therefore, the Bakersfield MSA is utilized in this analysis.

As shown in Table 3.13-2, the areas of largest growth are expected to be in the Health Care and Social Assistance, Private Household Workers, Professional, Scientific and Technical Services, and Wholesale Trade industries with the areas of lowest growth projected to be in Management of Companies and Enterprises and Finance and Insurance. In addition, employment in the Farm industry is expected to decrease by 1.6 percent (1.6%).

Table 3.13-2. Industry Employment Projections for 2008-2018, Bakersfield MSA, Kern County

	Annual Average Employment		Employment Change	
Industry Title	**2008**	**2018**	**Numerical**	**Percent**
Self Employment	17,200	18,600	1,400	8.1
Private Household Workers	3,100	4,200	1,100	35.5
Total Farm	49,600	48,800	-800	-1.6
Mining and Lodging	10,700	11,400	700	6.5
Construction	16,500	18,000	1,500	9.1
Manufacturing	13,700	15,500	1,800	13.1
Wholesale Trade	7,700	10,200	2,500	32.5
Retail Trade	27,400	30,300	2,900	10.6

Table 3.13-2. Industry Employment Projections for 2008-2018, Bakersfield MSA, Kern County

	Annual Average Employment		Employment Change	
Industry Title	**2008**	**2018**	**Numerical**	**Percent**
Transportation, Warehousing, and Utilities	9,600	10,700	1,100	11.5
Information	3,000	3,300	300	10.0
Finance and Insurance	5,500	5,800	300	5.5
Real Estate and Rental and Leasing	3,300	3,700	400	12.1
Professional, Scientific and Technical Services	10,500	14,100	3,600	34.3
Management of Companies and Enterprises	2,400	2,400	0	0.0
Administrative and Support and Waste Management and Remediation Services	12,200	14,800	2,600	21.3
Education Services (Private)	1,900	2,500	600	31.6
Health Care and Social Assistance	23,600	33,300	9,700	41.1
Arts, Entertainment, and Recreation	21,500	25,900	4,400	20.5
Accommodation and Food Services	19,100	23,000	3,900	20.4
Other Services	7,000	7,400	400	5.7
Federal Government	9,800	10,600	800	8.2
State Government	10,000	10,800	800	8.0
Local Government	41,700	47,200	5,500	13.2
2012 Total Workers		**384,000**		
2012 Unemployment Rate		**57,600 (15%)**		

Source: EDD, 2012a

In addition to the Bakersfield MSA, another major statistical area within a one-hour commute distance of the AEWP is the North Antelope Valley Census County Division (CCD). CCDs are geographic statistical subdivisions of counties established cooperatively by the Census Bureau and officials of state and local governments in states where minor civil divisions either do not exist or are unsatisfactory for census purposes. Therefore, the North Antelope Valley CCD includes a number of small rural communities within a one-hour commute of the AEWP area. Based on the workforce and commute trip distribution provided in sections 4.13 and 4.16, respectively, two other major communities within a one-hour commute distance are determined to be the Cities of Lancaster and Palmdale. These communities are included within the North Antelope Valley CCD. Furthermore, the North Antelope Valley CCD contains a number of other small communities within the Antelope Valley (including the Mojave Desert area) within a one-hour commute of the AEWP site. Relevant employment data for the North Antelope Valley CCD is included in Table 3.13-3. It should be noted that the data presented in Tables 3.13-2 and 3.13-3 is considered to represent the best available employment conditions of the AEWP one–hour commute area from both a regional and local study area level.

Table 3.13-3. 2010 Industry Employment, North Antelope Valley CCD, Los Angeles County

	Annual Average Employment	
Industry Title	**Workers**	**Percent**
Agriculture, forestry, and mining	664	1.0
Construction	5,520	8.1
Manufacturing	7,701	11.3
Wholesale trade	1,455	2.1
Retail Trade	9,138	13.4
Transportation, warehousing, and utilities	3,180	4.7
Information	1,512	2.2
Finance and insurance, real estate	3,576	5.2
Professional, scientific, and management	5,668	8.3
Education	15,824	23.2
Arts and entertainment, food service	4,991	7.3
Other services, except public administration	3,283	4.8
Total Workers	***62,512***	***91.6***
Unemployed	***3,626***	***5.8***

Source: US Census, 2010b

3.13.2.2 Government Revenues

Table 3.13-3 identifies both the financing sources and use of funds for Kern County for the fiscal year (FY) 2010-2011. As shown, intergovernmental revenues and taxation were the largest County funding source, while public protection and public assistance were the largest expenditures.

Table 3.13-4. Government Revenue and Spending for Kern County, FY 2010-2011

Revenue	Amount	Percent
Financing Sources		
Taxes	$353,500,880	21.62
Licenses, Permits, and Franchises	18,650,566	1.14
Fines, Forfeitures, and Penalties	21,563,314	1.32
Revenue From Use of Money and Property	18,988,250	1.16
Intergovernmental Revenues	670,449,053	41.00
Charges for Services	166,954,283	10.21
Miscellaneous	11,134,099	0.68
Other Financing Sources	243,574,172	14.89
Balances Carried Forward From Prior Year	9,480,770	0.58
Cancelation of Prior Year Reserves/ Designations	121,090,371	7.40
Total Financing Sources	*$1,635,385,758*	*100.00*

Table 3.13-4. Government Revenue and Spending for Kern County, FY 2010-2011

Revenue	Amount	Percent
Use of Funds		
General Government	$129,377,748	7.91
Public Protection	578,107,663	35.35
Public Ways and Facilities	77,702,952	4.75
Health and Sanitation	242,749,283	14.84
Public Assistance	490,965,956	30.02
Education	8,462,381	0.52
Recreation and Cultural Services	12,079,282	0.74
Debt Service	6,901,332	0.42
Appropriation for Contingencies L general purpose	33,986,079	2.08
Provision for Reserves and Designations	55,053,082	3.37
Total Spending Requirements	*$1,635,385,758*	*100.00*

Source: Kern County, 2011.

3.13.3 Applicable Regulations, Plans, and Standards

3.13.3.1 Federal

Bureau of Land Management Land Use Planning Handbook, Appendix D

As required by the Bureau of Land Management (BLM) Land Use Planning Handbook, Appendix D (BLM, 2005a), an analysis of this type needs to consider existing socioeconomic conditions and impacts on several geographic scales. An analysis at a local level presents a challenge because the AEWP is in a sparsely populated area, with the largest urban center being the City of Bakersfield located 30 miles west of the site. Based on BLM requirements, a reasonable study area for localized socioeconomic impacts would include both the City of Tehachapi and the Bakersfield MSA, as described earlier in Section 3.13.1.

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The AEWP would be located within the boundaries of the BLMs California Desert Conservation Area (CDCA). The CDCA, which covers 25 million acres of land, serves as the BLM's land use guide for management of these public lands (BLM, 2007). The BLM West Mojave Plan serves as a Habitat Conservation Plan and CDCA amendment (BLM, 2005b). A review of both the CDCA Plan and the West Mojave Plan indicated that no specific requirements regarding socioeconomics were identified beyond those discussed by the BLM within their Land Use Planning Handbook, Appendix D (BLM, 2007, 2005a, and 2005b).

NEPA

Under NEPA (42 United States Code (USC) 4321 et seq.), an Environmental Impact Statement (EIS) must include an analysis of the Proposed Action's economic, social, and demographic effects related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

3.13.2.2 State

California Housing Element Law

The California Housing Element Law, enacted in 1969, is implemented by the California Department of Housing and Community Development (HCD), one of 13 departments within the California Business, Transportation and Housing Agency. The HCD is responsible for reviewing local government housing elements for compliance with State law and providing written comments to the local government. Using the information provided by local governments in its housing element, the HCD determines the regional housing need for each county and allocates funding to meet this need to the council of governments for distribution to its jurisdictions. The HCD also oversees distribution of funding related to the regional housing need by the council of governments to the local governments to ensure that funds are appropriately allocated.

CEQA

Title 14 of the California Code of Regulations, Chapter 3, Guidelines for Implementation of the CEQA, Article 9(a), Section 15131, states the following with regard to economic and social effects:

> *(a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.*
>
> *(b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant. As an additional example, if the construction of a road and the resulting increase in noise in an area disturbed existing religious practices in the area, the disturbance of the religious practices could be used to determine that the construction and use of the road and the resulting noise would be significant effects on the environment. The religious practices would need to be analyzed only to the extent to show that the increase in traffic and noise would conflict with the religious practices. Where an EIR uses economic or social effects to determine that a physical change is significant, the EIR shall explain the reason for determining that the effect is significant.*
>
> *(c) Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a project are feasible to reduce or avoid the significant effects on the environment identified in the EIR. If information on these factors is not contained in the EIR, the information must be added to the record in some other manner to allow the agency to consider the factors in reaching a decision on the project.*

3.13.2.3 Local

The AEWP boundaries are located predominately within the Kern County General Plan (KCGP) with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to recreational resources. Relevant KCGP goals, policies, and implementation measures are listed below. The Mojave Specific Plan contain policies, goals, and implementation measures that are general in nature and not specific to

development such as the AEWP. Therefore, they are not listed below, but, as stated in Chapter 2, Introduction, all policies, goals, and implementation measures are incorporated by reference.

Kern County General Plan (KCGP)

The policies, goals, and implementation measures in the KCGP for population and housing applicable to the AEWP are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the AEWP. Therefore, they are not listed below, but, as stated in Chapter 2, "Introduction," all policies, goals, and implementation measures in the KCGP are incorporated by reference.

Chapter 1. Land Use, Open Space, and Conservation Element

Section 1.0 General Provisions

Goals

- **Goal 1**. Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving viable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

- **Policy 6.** The County shall ensure the fair treatment of people of all races, cultures, incomes and age groups with respect to the development, adoption, implementation and enforcement of land use and environmental programs.
- **Policy 7.** In administering land use and environmental programs, the County shall not deny any individual or group the enjoyment of the use of land due to race, sex, color, religion, ethnicity, national origin, ancestry, lawful occupation or age.
- **Policy 8.** The County shall ensure that new industrial uses and activities are sited to avoid or minimize significant hazards to human health and safety in a manner that avoids over concentrating such uses in proximity to schools and residents.

Implementation Measures

- **Implementation Measure A.** The Kern Council of Governments (COG) will monitor population growth and its subsequent development effects to identify the distribution of population increases and the capabilities of governmental and public agencies to provide new development with adequate services and facilities in a fiscally acceptable manner.

1.6 – Residential

Goals

- **Goal 2.** Ensure the provision of safe and amenable living environments and the promotion of efficient and economical use of land.
- **Goal 3.** Discourage scattered urban density development within Kern County that is not supported by adequate infrastructure.
- **Goal 7.** Minimize land use conflicts between residential and resource, commercial, or industrial land uses.

Policies

- **Policy 3.** The owners of individually residentially zoned lots of record will, in any event, retain the right to develop a housing unit structure regardless of the General Plan designation, provided County development ordinance criteria are met.
- **Policy 5.** Discourage premature urban encroachment into areas of intense agriculture areas.
- **Policy 9.** Development in areas without adequate infrastructure or development that places a burden on public services (i.e., fire, sheriff, parks, and libraries) shall be discouraged.

Implementation Measures

- **Implementation Measure A.** All General Plan Amendments, zone changes, conditional use permits, discretionary residential developments of five or more dwelling units, and variations from height limits established by zoning for properties which are located in the Airport Influence Areas or near a military airport shall be reviewed by the Planning Department for compatibility with the Kern County Airport Land Use Compatibility Plan.
- **Implementation Measure G.** Discretionary project applicants shall provide documentation of adequate public infrastructure and services which include, but are not limited to:
  - 1. Fire protection.
  - 2. Police protection.
  - 3. Sewage disposal.
  - 4. Water service including quality and quantity.
  - 5. Documentation that water conservation measures have been considered.
- **Implementation Measure I.** Discretionary projects located within a Moderate, High, or Extreme Fire Hazard Zone shall abide by building materials and construction requirements set forth by the Kern County Fire Department and Office of Emergency Services.

Housing Element 2008-2013

The housing element is a separate element of the KCGP. Each city and county is required by California housing law to develop a housing element, one of the seven (7) general plan elements, in order to qualify for allocation of State regional housing funding. To receive regional housing funds, each city and county must update its General Plan housing element on a regular basis (generally, every five years). The housing element must incorporate policies and identify potential sites that would accommodate the city or county's share of the regional housing needs. The County adopted the current housing element in December 2008. Because the AEWP would not include new housing, the goals and policies of the housing element largely do not apply to the AEWP.

Kern Council of Governments

The Kern COG acts as an area-wide planning agency, assisting local governments with multijurisdictional issues such as air quality, transportation, water quality, energy, and housing. The Kern COG serves this purpose for Kern County. The primary function of the Kern COG is to address regional transportation issues, but it also functions as the State-designated Census Data Center Affiliate. The Kern COG and its member agencies include the County and the 11 incorporated cities within the County (KCOG, 2011). The Kern COG facilitates comprehensive planning and intergovernmental coordination.

Under California housing law, the HCD is responsible for estimating the relative share of California's projected population growth that would occur in each county in the State based on DOF population projections and historical growth trends. Based upon the projected growth in the number of households in

Kern County between 2008 and 2013, the HCD calculated the number of additional units that need to be available during that period. In turn, the Kern COG is required by State law to determine the portion of funding for regional housing to be allocated to each jurisdiction within the region.

To do this, the Kern COG developed a Regional Housing Needs Assessment (RHNA) for the period between 2006 and 2013. The plan addresses all housing needs for all income levels in the Kern region. Need is based on available census data, market demand for housing, employment opportunities, the availability of suitable sites, public facilities, commuting patterns, and population projections. Future housing needs refer to the projected amount of housing a community is required to plan for during a specified planning period. The RHNA supports communities in anticipating growth so that they can grow in a way that enhances quality of life; improves access to jobs, transportation, and housing; and avoids adversely affecting the environment. Each of the local governments has an opportunity to comment on the allocations proposed by the Kern COG (KCOG, 2006).

The Kern COG is required to assign regional housing shares to the cities within its region on a similar five-year schedule. The shares of the regional need are allocated before the end of the cycle so that the cities and counties can amend their housing elements by the deadline. The Kern COG has determined the additional housing construction needed by 2013 is 42,640 for the entire County, and 8,586 units for unincorporated areas of the County (KCOG, 2006).

Kern County Ordinance (Title 19 of the Ordinance Code of Kern County),

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). None of the provisions of Chapter 19.64 apply to population and housing issues related to the AEWP.

3.14 Geology and Soil Resources

This section describes the existing soil conditions, geology and seismicity in the project area in terms of local topography, geologic substrate, soil resources, and regional seismicity. This section also identifies local geologic and seismic hazards that could potentially affect structures associated with the proposed Alta East Wind Project. Regulations, plans, and policies including federal, State, and local laws related to geologic and seismic considerations that may be relevant to the proposed Alta East Wind Project (AEWP) are discussed below in Section 3.14.2.

The analysis in this section utilizes, in part, the *Alta East Wind Project – Geological Resources Technical Memorandum*, prepared by CH2MHill (CH2MHill, 2010f). The complete text of this Geotechnical Report is provided as Appendix N of this Draft Plan Amendment Draft Environmental Impact Statement / Environmental Impact Report (EIS/EIR).

3.14.1 Environmental Setting

The AEWP site is located in the Antelope Valley in southern Kern County, near the Community of Mojave, California. This area lies within the Mojave Desert geomorphic province. The project site is located within an area of southern California known to be seismically active.

Regional Geology

The project site straddles the desert floor and the foothills of the Tehachapi Mountains. Terrain of the area is mountainous in the west and generally flat in the east with a southeasterly slope. The Mojave Desert region is geologically young and seismically active. The geology of the region around the site is very complex, reflecting geologically rapid processes driven by active tectonics and rapid erosion primarily from the result of movement along the San Andreas and Garlock fault systems. Refer to Figure 3.14-1 in Appendix A for a regional map of the faults located in the vicinity of the Project site.

Tehachapi Mountains. The Tehachapi Mountains are an east-west trending mountain range at the southern end of the Sierra Nevada which separates the Great Valley from the Mojave Desert. The Tehachapi Mountains have been sheared into this east-west trend by left-lateral fault movement of the Garlock Fault which runs near the southern boundary of the range. The Tehachapi Mountains are primarily composed of Mesozoic Quartz monzonite with local lenses of hornblende diorite. The Tehachapi Mountains are also characterized by deeply incised valleys, steep hillsides, and mountains that lie on the eastern side of the Pacific Crest line descending towards the Mojave Desert.

Antelope Valley. The Antelope Valley consists of 1,200 square miles of elevated desert terrain, located along the western edge of the Mojave Desert and is primarily an alluviated desert plain containing bedrock hills and low mountains. The rocks of the Antelope Valley are characterized by relatively flat-lying topography and valley fill deposits. The Antelope Valley is covered primarily by alluvial deposits of Quaternary age: Holocene Alluvium and Pleistocene Older Alluvium. The Holocene alluvial deposits consist of slightly dissected alluvial fan deposits of gravel, sand, and clay. The Older Alluvium is located primarily near the margins of the Antelope Valley at the flanks of the Sierra Pelona and Tehachapi Mountains and consists of weakly consolidated, uplifted and moderately to severely dissected alluvial fan and terrace deposits composed primarily of sand and gravel.

Local Geology

The local geology of the AEWP area includes alluvial material derived from erosion of the adjacent highlands and bedrock of the easternmost Tehachapi Mountains. The area is dominated by broad alluviated basins with mostly aggraded surfaces receiving non-marine continental deposits from adjacent uplands. Quaternary alluvium several thousand feet thick underlies the local area. Cretaceous quartz monzonite, consisting of feldspars with significant amount of quartz, forms the basement of stratigraphic

sequences in the Mojave Block in the vicinity of the project site. The quartz monzonite is overlain by Miocene-age volcanic rocks.

The AEWP site is generally composed of sand, gravel, and cobbles with very little to no fine-grained soils. Surficial geologic units present within the AEWP area, as described in the Geological Resources report prepared for the project, are summarized in the following table.

Table 3.14-1. Surficial Geological Units in the Vicinity of the Proposed Alta East Wind Project

Code	Name	Description	Relevance and Proximity to Project Site
Qa	Alluvium	Undissected unconsolidated gravel, sand, and silt.	Alluvium of Late Pleistocene and Holocene age present in eastern and northern portions of AEWP site, and surrounding the project site to the east and south. Alternatives A, B, and C transmission lines are predominately situated on Alluvium.
Qoa	Older Alluvium	Dissected slightly consolidated alluvial sediments. Fanglomerates and terrace gravels often dissected and indurated. Finer grained facies including silt and sand. The detritus is almost exclusively of granitic origin.	Present in the southeastern portion of the AEWP site, including where the Alternative B transmission line enters the site. Also present in off-site areas to the southwest.
Qot	Terrace Gravel	Older alluvial deposits of coarse-grained gravel, sand, and silt.	This is coarse grained, and of limited extent in the AEWP area (relevant only to the transmission line associated with Alternative B).
Th	Horned Toad Formation	Gray clay shale, white marl, buff sandstone, reddish siltstone, and basal granitic conglomerate. Age, middle Pliocene (Hemphillian).	This geological unit is present in the AEWP site in a southwest-northeast trending swath, including where the Alternative A transmission line enters the site, composed of about 1,000 feet of terrestrial sandstones and clays. Overlies granitic basement rocks and is restricted to the Horned Toad Hills northwest of Mojave.
Tr	Rhyolitic Felsite	Intrusive into Kinnick and older formations	Present in limited extent in the AEWP area; there is a small west-east-trending strip in the north-central portion of the AEWP site.
bc	Bean Canyon Formation	Marble, hornfels, schist, phyllite, and quartzite.	Not present on the AEWP site or along the transmission line routes; there is some occurrence to the southwest.
gn	Gneissic Rocks	Quartz diorite gneiss and gneissoid quartz diorite, some biotite schist, and micaceous quartzite.	Present to the northwest, along the Garlock Fault Zone, these are granitic rocks and associated metamorphic suites, in this area restricted to gneissic rocks. There are no marble pendants associated with granitic rocks in the AEWP vicinity as there are elsewhere.
qm	Quartz Monzonite	Quartz monzonite is a plutonic rock that, like granite, consists of quartz and the two types of feldspar, but has much less quartz than granite.	Underlies the northwestern portion of the AEWP site; present in off-site areas to the southwest and the northwest.

Source: CH2MHILL, 2010f (see Figure 1: Surficial Geology)

Table 3.14-2. Soils in the Vicinity of the Proposed Alta East Wind Project

Symbol	Name	Slope	Composition
156	Pajuela-Whitewolf association	30–50%	Pajuela and similar soils: 60% Whitewolf and similar soils: 35% Minor components: 5%
114	Cajon loamy sand	0–5%	Cajon and similar soils: 80% Minor components: 12%
104	Arizo gravelly loamy sand	2–9%	Arizo and similar soils: 85% Minor components: 15%
185	Torriorthents-Rock outcrop complex	Steep	Torriorthents and similar soils: 50% Rock outcrop: 30% Minor components: 10%
124	Cinco gravelly loamy sand	50–75%	Cinco and similar soils: 85% Minor components: 15%
137	Garlock loamy sand	2–9%	Garlock and similar soils: 85% Minor components: 10%
116	Cajon gravelly loamy sand	0–9%	Cajon and similar soils: 85% Minor components: 15%

Source: NRCS, 2012

Final engineering and design of the proposed AEWP or an alternative will identify site-specific soil characteristics to ensure appropriate placement of project infrastructure.

Geologic Hazards

As described in the Safety Element of the Kern County General Plan, earthquakes are the principal geologic activity affecting public safety in the County (Kern County, 2007). Potential impacts to public safety associated with earthquakes and seismic activity, as relevant to the proposed AEWP, are addressed in Section 4.10 (Public Health and Safety) of this EIR/EIS. The following discussion characterizes the environmental setting for geologic hazards in the AEWP area, including earthquakes and seismic activity.

Seismic Ground Shaking. There are several active faults within 50 miles of the AEWP site which present geologic hazards to the project site and vicinity. These include the following:

- Garlock Fault (West) - extends through the northwest portion of the AEWP site;
- White Wolf Fault - 25 miles to the west;
- San Andreas Fault - 33 miles to the west;
- Pleito Thrust Fault - 37 miles to west; and
- San Gabriel Fault - 46 miles to the southwest.

These faults have had Holocene activity (within the last 10,000 years) and produced notable earthquakes including the 1857 Fort Tejon magnitude 8.2+ earthquake along the San Andreas Fault and the 1952 Arvin/Tehachapi magnitude 7.7 earthquake on the White Wolf Fault. The two major faults in the AEWP vicinity are the Garlock Fault and the San Andreas Fault, both of which are described in further detail below.

- **Garlock Fault.** This is a major structural break trending east-northeast from its intersection with the San Andreas Fault, approximately 23 miles west of the AEWP site. From this intersection, the Garlock Fault zone extends about 162 miles toward Death Valley. The western segmentof the Garlock Fault is located along the southern perimeter of the Tehachapi Mountains. In this segment, stream channels have been displaced by left slip movement. The western portion of the AEWP site is located within an Alquist-Priolo Special Study Zone (California Fault Zone) related to the Garlock Fault. The north

branch of the Garlock Fault is considered an active fault, and is a high-angle shear zone with predominant strike slip movement to the west. In the region of the AEWP site, the displacement is unknown, although it is likely to be great.

- **San Andreas Fault.** In general, this high-angle fault trends northwest and was formed and active in Pleistocene time. Many related faults, including the Tylerhorse Fault (3.5 miles southwest of the AEWP site) and the Cottonwood Fault (5.0 miles southwest of the AEWP site), off-set alluvial deposits and are active or potentially active. Several of the regionally related faults, including the Galway Lake and Homestead Valley Faults, caused earthquakes and ground ruptures (right slip) in 1975 and 1979, respectively. All of these faults are considered part of the San Andreas Fault system. It has not been possible thus far to determine the nature and amount of fault displacement; however, Holocene age movement has been shown on many of these northwesterly trending faults as observed by displacement in alluvial fans and offset lines of drainage.

Numerous historic earthquakes have affected the Mojave Desert region where the AEWP site is located. Table 3.14-3 provides a summary of major known seismic events in the AEWP vicinity.

Table 3.14-3. Historic Seismic Events in the Alta East Wind Project Area

Date	Name	Fault	Magnitude	Notes
01/09/1857	Fort Tejon Earthquake	San Andreas Fault	8.2+	Widespread damage and 30 feet of slippage over a 200-mile area
07/21/1952	Arvin/Tehachapi Earthquake	White Wolf Fault	7.7	Extensive damage to buildings and highways
08/22/1952	Bakersfield Earthquake (aftershock of Arvin/ Tehachapi)	White Wolf Fault, 6 miles E-SE of Bakersfield	5.8	Extensive damage to already-weakened structures and multiple surface fissures

Source: CH2MHILL, 2010f.

The majority of recent seismic activity in the AEWP vicinity has been associated with the White Wolf and San Andreas Faults. Earthquakes along the Garlock Fault, adjacent to the site, have not occurred within the last 200 years.

Strong Ground Shaking. Strong ground shaking from an earthquake can result in damage associated with landslides, ground lurching, structural damage, and liquefaction. A major seismic event on the Garlock or San Andreas Faults, and possibly other active faults in the region, would likely cause moderate to significant ground shaking at the project site. An in-depth geotechnical study of final turbine locations would be conducted prior to implementation of the project in order to ensure proper design and compliance with applicable building codes and geotechnical requirements associated with the potential for strong ground shaking.

Fault Rupture. Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features. The State of California has mapped known active faults that may cause surface fault rupture in inhabited areas as part of the Alquist-Priolo Earthquake Fault Zoning Act (DOC 2007). The northwestern part of the site includes an area that lies within a designated Alquist-Priolo Fault Zone of the Garlock Fault; therefore, there is potential for surface rupture to occur in the project area in association with the Garlock Fault.

Liquefaction. Liquefaction occurs when saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground-shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction.

The lithology at the AEWP site and transmission line alternatives predominantly consists of dense decomposed granitic material and rock. In addition, the depth to water at the site is approximately 40 feet below

ground surface. The AEWP area has not been identified by Kern County as an area that is subject to liquefaction hazards. The potential for liquefaction to be a hazard at the project site and along the transmission line alternatives is considered to be negligible. (CH2MHILL, 2010f)

Lateral Spreading. Lateral spreading of the ground surface can occur within liquefiable beds during seismic events. Factors such as distance from the earthquake epicenter, the magnitude of the seismic event, and the thickness and depth of liquefiable layers affect the amount of lateral spreading that may occur.

As described above, the AEWP site is considered to have a negligible potential for liquefaction; therefore the potential for lateral spreading to occur is also considered negligible.

Dynamic Compaction. Dynamic compaction of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume, as the soil grains tend to rearrange into a more dense state. The decrease in volume can result in settlement of overlying structural improvements. (BLM, 2010c)

Due to geologic characteristics of the project site, the potential for dynamic compaction to occur is considered low.

Hydrocompaction. Hydrocompaction, or hydro-collapse, is generally limited to young soils that were deposited rapidly in a saturated state, most commonly by a flash flood. The soils dry quickly, leaving an unconsolidated, low density deposit with a high percentage of voids. Foundations built on these types of compressible materials can settle excessively, particularly when landscaping irrigation dissolves the weak cementation that is preventing the immediate collapse of the soil structure. (BLM, 2010c)

Due to geologic characteristics of the project site, the potential for hydrocompaction to occur is considered low.

Subsidence/Settlement. Subsidence is a settlement or lowering of the ground surface elevation due to factors such as tectonic movement, seismic compaction, hydrocompaction, consolidation induced by groundwater withdrawal, and consolidation under applied loads. Regional ground subsidence is typically caused by petroleum or groundwater withdrawal that increases the effective unit weight of the soil profile, increasing stress on deeper soils and resulting in consolidation or settlement of underlying soils (BLM, 2010c).

The lithology present in the subsurface of the AEWP site and vicinity appears to have a low potential for settlement or subsidence (CH2MHILL, 2010f).

Soil Hazards

Slope Stability and Landslides. In steep areas, strong ground shaking could activate landslides on hillsides, slope failures on creek banks (lurch cracking), and tension cracking in areas underlain by loose, low-density soils. Small landslides are common in Kern County's mountain areas, where loose material moves naturally down-slope, and/or where fires have caused loss of soil-stabilizing vegetative cover. Human activities also tend to make the earth materials less stable, increasing the potential for ground failure to occur. Human activities which contribute to landslide potential include the grading of steep slopes or overloading them with artificial fill, by extensive irrigation, construction of impermeable surfaces, excessive groundwater withdrawal, and removal of stabilizing vegetation.

With the project, turbines will be placed on compacted hill tops or ridges that will be graded to minimize the potential for movement. The potential for direct impact from mass wasting at the site or along transmission line alternatives is considered low.

Erosion. Soil erosion occurs when surface materials are worn away from the earth's surface due to land disturbance and/or natural factors such as wind and precipitation. The potential for soil erosion is determined by characteristics including texture and content, surface roughness, vegetation cover, and

slope grade and length. Wind erosion typically occurs when fine-grained noncohesive soils are exposed to high velocity winds, while water erosion tends to occur when loose soils on moderate to steep slopes are exposed to high-intensity storm events. As described above, soils at the project site are generally composed of sand, gravel, and rocks that typically would not exhibit shrink and swell characteristics. Clays and other fine grained soils are not expected to be common at the project site area..

Expansive Soils. Expansive soils are characterized by their ability to undergo volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from precipitation, irrigation, utility leakage, and/or perched groundwater, among other factors.

The soil present at the site and along the transmission line alternatives are primarily sands, gravels and rock that typically would not exhibit shrink and swell characteristics. Clays and other fine grained soils are not expected to be common at the proposed AEWP site area. As a result, the potential for expansive soils to be present that the site is low.

3.14.2 Applicable Regulations, Plans, and Standards

3.14.2.1 Federal

International Building Code. The 2006 International Building Code (IBC) is a model building code developed by the International Code Council (ICC) that sets rules specifying the minimum acceptable level of safety for constructed objects such as buildings in the United States. As a model building code, the IBC has no legal status until it is adopted or adapted by government regulation. California has adopted the IBC. The IBC was developed to consolidate existing building codes into one uniform code that provides minimum standards to ensure the public safety, health and welfare insofar as they are affected by building construction and to secure safety to life and property from all hazards incident to the occupancy of buildings, structures and premises. With some exceptions, the California Building Code discussed below is based on the ICB.

Federal Land Policy and Management Act of 1976 as Amended. The Federal Land Policy and Management Act (FLPMA) establishes policy and goals to be followed in the administration of public lands by the BLM. The intent of FLPMA is to protect and administer public lands within the framework of a program of multi-use and sustained yield, and the maintenance of environmental quality. Particular emphasis is placed on the protection of the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources and archaeological values. FLPMA is also charged with the protection of life and safety from natural hazards.

California Desert Conservation Area Plan. The California Desert Conservation Area (CDCA) Plan defines multiple-use classes for BLM-managed lands within the CDCA. With respect to geological resources, the CDCA Plan aims to maintain the availability of mineral resources on public lands for exploration and development.

Clean Water Act (CWA). The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non–point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). Projects that disturb one or more acre of land are required to obtain NPDES coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ. The General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which includes Best Management Practices (BMPs) to protect storm water runoff. Requirements of the Federal CWA and associated SWPPP requirements are described in further detail in Sections 3.19 and 4.19, Water Resources.

3.14.2.2 State

California Building Code. The California Building Code (California Building Code 2007) includes a series of standards that are used in project investigation, design and construction (including grading and erosion control). The CBC 2007 Edition is based on the 2006 ICB as published by the International Code Council, with the addition of more extensive structural seismic provisions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. This act provides mitigations against surface fault rupture of known active faults beneath occupied structures, and requires disclosure of the presence of any seismic faults to potential real estate buyers and a 50-foot setback for new occupied buildings. The Alquist-Priolo Earthquake Fault Zoning Act helps define where fault rupture is most likely to occur. This act groups faults into categories of active, potentially active and inactive.

Seismic-Hazards Mapping Act. The Seismic Hazards Mapping Act of 1990 directs the California Geological Survey to delineate seismic hazard zones. The purpose of this act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. These seismic hazards include areas that are subject to the effects of strong ground shaking such as liquefaction, landslides, tsunamis and seiches. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by the California Geological Survey in their land use planning and permitting processes. This act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones.

3.14.2.3 Local – Kern County

The project boundaries are located predominately within the KCGP with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures related to public health and safety, as discussed below. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to noise.

Kern County General Plan

The policies, goals, and implementation measures in the KCGP for geology and soils applicable to the project are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the proposed AEWP and such policies are incorporated by reference.

Section 1.3 Physical and Environmental Constraints

- **Policy 1.** Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.
- **Policy 6.** Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required and reducing soil erosion while maintaining soil stability.

- **Policy 7.** Ensure that effective slope stability, wastewater drainage, and sewage treatment in areas with steep slopes are adequate for development.

Section 1.9 Resource (Land Use, Open Space, and Conservation Element)

- **Policy 17.** Lands classified as MRZ-2, as designated by the State of California, should be protected from encroachment of incompatible land uses.

Section 4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure (Safety Element)

- **Policy 1.** The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Section 4.5 Landslides, Subsidence, Seiche, and Liquefaction (Safety Element)

- **Policy 1.** Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.
- **Policy 2.** Route major lifeline installations around potential areas of liquefaction or otherwise protect them against significant damage from liquefaction in an earthquake.
- **Policy 3.** Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

Section 5 Energy Element

- **Policy 2.** All wind energy development shall be subject to the development standards of Kern County Zoning Ordinance.

Mojave Specific Plan

Chapter 3- Land Use Element

- **Goal.** Kern County will not permit new developments to be sited on land which is environmentally unsound to support such development.
- **Objective 3.5.** Protect the public from natural hazards including flooding and earthquakes.
- **Policy 3.5.1.** Proposed projects within the seismic hazard overlay shall meet all requirements of the Kern County Building Code.
- **Policy 3.5.2.** Proposed residential and commercial projects within the seismic hazard, steep slope or landslide overlay should be encouraged to develop using the cluster option.

Chapter 4 - Conservation

- **Goal 1**. Conserve known areas of mineral resources by limiting encroachment of incompatible urban uses.

Chapter 9 - Seismic Safety Element

- Promote awareness of potential flood and geologic hazards.
- Promote awareness of potential human-caused hazards.

- Ensure that new development does not create a burden on adequate levels of fire and law enforcement services.

Objectives

- **Objective 9.1.** Minimize the potential damage to structures and loss of life that could result from earthquakes.
- **Objective 9.2.** Prevent loss of life, reduce personal injuries and property damage, and minimize economic loss resulting from flood hazards
- **Objective 9.3.** Protect the community from human-caused hazards related to air and ground transportation, hazardous materials, and other human activities.
- **Objective 9.4.** Ensure that new development does not degrade fire and law enforcement service levels.

Policies

- **Policy 9.1.1 (A-1, A-3, M-2).** Safety measures required by the Uniform Building Code and the Kern County Seismic Safety Element during construction of new buildings are hereby incorporated by reference.
- **Policy 9.2.1 (A-1, A-3, M-1, M-3).** Require new construction within a special flood hazard area, as specified on Flood Insurance Rate Maps (FIRMs) (shown on the Physical Constraints Overlay Map in this Plan), to conform to the Kern County Floodplain Management Ordinance.
- **Policy 9.2.3 (M-3).** Investigate and mitigate flood hazards, or locate development away from such hazards, to preserve life and protect property.
- **Policy 9.2.4 (K-1).** Protect drainage channels located within the Specific Plan area from development with the use of drainage easements.
- **Policy 9.2.5 (C-5).** Maintain open areas needed to retain stormwater and prevent flooding in developed areas.
- **Policy 9.2.6 (C-5, E-1).** Require flood studies as part of discretionary permit application and site plan review within flood hazard overly areas (as identified on the Physical Constraints Map) and as required by the Kern County Engineering and Survey Services Department.
- **Policy 9.3.1 (M-5, M-7).** Encourage all generators and processors of hazardous waste to develop long-term waste management programs in compliance with the Kern County General Plan.
- **Policy 9.3.2 (M-5, M-7).** Ensure that hazardous materials used in business and industry are properly handled, and that information on their handling and use is available to fire protection and other safety agencies in accordance with the Fire Code.
- **Policy 9.3.3 (B-4, C-5, G-3).** Ensure that development projects are consistent and compatible with the Kern County Airport Land Use Compatibility Plan and Mojave Specific Plan.
- **Policy 9.3.4 (M-7).** Reduce the risk of potential spills and exposure from ground transportation hazards, such as rail, truck, and roadway systems.
- **Policy 9.3.6 (M-8).** Coordinate with the State to monitor hazardous sites located in the Plan Area.
- **Policy 9.4.3 (F-2).** Ensure that street widths and clearance areas are sufficient to accommodate fire protection and emergency vehicles during land division review and site plan review.

- **Policy 9.4.5 (L-1).** Continue to enforce the Kern County Health, Fire and Building standards for new development and rehabilitation of existing structures.

Kern County Zoning Ordinance (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy Combining District

The Wind Energy Combining District contains the following sections applicable to geology and soils:

- **Section 19.64.140(A):** All necessary building and grading permits shall be obtained from the Kern County Planning Department. For construction and permit purposes, all wind turbine generator towers shall conform to the regulations of the applicable seismic zone of the Uniform Building Code and the applicable ground shaking zone.
- **Section 19.64.140(K):** Prior to issuance of any grading permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared by a California registered civil engineer or other professional and submitted for the approval by the Director of the Engineering and Survey Services Department.
- **Section 19.64.140(L):** A minimum of on-site roadways shall be constructed. Temporary access roads utilized for initial machine installation shall be revegetated to a natural condition after completion of machine installation. The project proponent shall submit a plan of all proposed roads, temporary and permanent, for approval by the Planning Director prior to the issuance of any building permits.
- **Section 19.64.140(M):** Construction of any slopes steeper than four to one (4:1) shall be prohibited unless specifically authorized by the Kern County Planning Department and mitigation is provided.
- **Section 19.64.130(N):** Soil erosion and sedimentation control plan, including revegetation plan, as provided in Section 19.64.140 (grading permits only).

Kern County Code of Building Regulations (Title 17 of the Ordinance Code of Kern County)

All construction in Kern County is required to conform to the Kern County Building Code (Chapter 17.08, Building Code, of the Kern County Code of Regulations). Kern County has adopted the Uniform Building Code, 2007 Edition, with some modifications and amendments. The entire County is in Seismic Zone 4, a designation previously used in the UBC to denote the areas of highest risk to earthquake ground motion. California has an Unreinforced Masonry program that details seismic safety requirements for Zone 4. Kern County has adopted the seismic provisions associated with Seismic Zone 4.

Chapter 17.28 Kern County Grading Code.

The purpose of the Kern County Grading Code is to safeguard life, limb, property and the public welfare by regulating grading on private property. All requirements of the Kern County Grading Code will be applied during implementation of the proposed project. All required grading permit(s) shall be obtained prior to commencement of construction activities. Sections of the Grading Code that are particularly relevant to geology and soils are provided below.

Section 17.28.140 Erosion Control.

A. Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are

not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Section 17.28.170 Grading inspection.

A. General. All grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations and testing shall be provided by the civil engineer, soils engineer and the engineering geologist retained to provide such services in accordance with Subsection 17.28.170(E) for engineered grading and as required by the building official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade and surface drainage of the development area. If revised plans are required during the course of the work they shall be prepared by the civil engineer.

C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. In the event of changed conditions, the permittee shall be responsible for informing the building official of such change and shall provide revised plans for approval.

F. Building Official. The building official may inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work is not being done in conformance with this chapter or the approved grading plans, the

discrepancies shall be reported immediately in writing to the permittee and to the building official. Recommendations for corrective measures, if necessary, shall also be submitted.

H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during the course of the work, the work shall be stopped until both of the following have occurred:

1. The civil engineer, soils engineer, or engineering geologist has notified the building official in writing that they will no longer be responsible for the work and that a qualified replacement has been found who will assume responsibility.
2. The replacement civil engineer, soils engineer, or engineering geologist notifies the building official in writing that they have agreed to accept responsibility for the work.

3.15 Special Designations and Agriculture

The following discussion addresses existing special designations and agricultural lands in the proposed Alta East Wind Project (AEWP) area; and includes the laws and regulations applicable to special designations and agricultural lands. The BLM's Land Use Planning Handbook defines 'special designations' as all national monuments and congressionally designated national conservation areas, national recreation areas, cooperative management and protection areas, outstanding natural areas, and forest reserves (BLM, 2005f). For the AWEP, special designations consist of Agricultural Land, Forestry Resources, Areas of Critical Environmental Concern (ACEC), Back Country Byways, National Recreation Areas, National Scenic and Historic Trails, Wild and Scenic Rivers, Wilderness Areas, Wilderness Study Areas, and Donated Lands. The study area is the proposed AEWP area as defined in Figure 2-1 in Appendix A.

3.15.1 Environmental Setting

3.15.1.1 Regional

The AEWP would be located at the base of the Tehachapi Mountains in southeastern Kern County. The AEWP site is adjacent to the Middle Knob Area of Critical Environmental Concern (ACEC), one mile east of the Pacific Crest Trail (PCT), and is two miles southeast of the Horse Canyon ACEC. The AEWP would be potentially visible from these special land use areas. Figure 3.15-1 in Appendix A displays these special land use areas in relation to the project site.

Kern County has a long history of agricultural operations. Kern County covers 8,202 square miles, including 1,373 square miles of harvested agricultural land and 2,317 square miles of range land. In 2008 17 percent of the total land was harvested land and 28 percent of County land was rangeland. The 2009 total value of agricultural commodities produced in Kern County is $3,606,498,000 which is a decrease of -10.5 percent over the 2008 crop value. The major factors affecting the decrease in total value from the 2008 crop values were significant price and acreage decreases in field crops, livestock and poultry products, livestock and poultry, and vegetable crops. According to the Kern County Department of Agriculture, these decreases were partially offset by increases in fruit and nut crops and seed crops. The top five commodities for 2009 were grapes, milk, almonds, carrots, and citrus which make up more than $2.2 billion of the total value (KCDA, 2010). Kern County is growing rapidly and other non-agricultural uses are encroaching on agricultural lands. The California Department of Conservation (DOC) 2008–2010 Land Use Conversion table shows that 3,463 acres of land, including all of the categories of important farmland, grazing land, and other land, were converted to non-agricultural use. Sixteen (16) square miles of this land were converted to urban land (DOC, 2010).

3.15.1.2 Local

The AEWP would be located on BLM- and County-administered lands in the southeastern Kern County (see Figure 2-1 in Appendix A). The site is generally characterized as sparsely developed and rural. Land uses in and around the project area consist of open space with scattered residences, off-highway vehicle use, and livestock grazing. The nearest populated area is located northeast of the AEWP area, in the outskirts of the unincorporated Community of Mojave. Existing developments within and surrounding the AEWP area include ROWs for underground pipelines, underground portions of the Los Angeles Aqueduct, Southern California Edison (SCE) electric transmission lines, Union Pacific Railroad (UPRR) railroad siding, which is a short stretch of railroad track used to store rolling stock or enable trains on the same line to pass, and a Los Angeles Department of Water and Power (LADWP) electric transmission line easement. The Cameron Ridge segment of the PCT passes northwest of the AEWP area, north of SR 58.

The proposed transmission line would not traverse any of the special designations as listed below.

3.15.1.3 Special Designations

Agricultural Lands. According to the DOC's Farmland Mapping and Monitoring Program (FMMP), the project site and the proposed transmission line are within two FMMP designations: Grazing Land and Non-agriculture and Natural Vegetation (DOC, 2008). Grazing Land consists of existing vegetation that is suited for grazing of livestock; and Non-agriculture and Natural Vegetation includes heavily wooded, rocky or barren areas, riparian and wetland areas, grassland areas which do not qualify for grazing, small water bodies, and constructed wetlands. The AEWP site is not located on lands that are under a Williamson Act contract nor is it in an area designated as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as designated by the DOC (refer to Figure 3.15-2 in Appendix A for a map of the farmland classifications). However, the BLM's Warren Allotment is entirely within the project site, and a portion of the Hanson Common Allotment is within the northern boundary of the project site. Details regarding the existing conditions of these allotments are provided in Section 3.7 (Livestock Grazing).

Portions of the AEWP site are currently within the County's Limited Agriculture zoning designation; however, with implementation of the AEWP, the entire site would be rezoned to the Exclusive Agriculture designation with Wind Energy and Floodplain Combining Districts. In addition, Chapter 7.16, Estrays, of the County's municipal code designates grazing areas, which are generally referred to as Open Range designations (refer to Figure 3.15-3 in Appendix A for a map of the estray designations). The project site is within the Open Range and Open Range with Conditions designations of the Estray Ordinance. In such areas, a person may not "take up" any estray (stray) animal found on their property nor will they have a lien against the animal unless their property is surrounded by a good and substantial fence. In areas not designated as "grazing areas," a person finding any estray animal on their property (whether fenced or not) may seize the animal and have a lien on the animal for all expenses involved in seizing, keeping, and caring for the animal. In other words, in an "Open Range," a person must fence animals off their property if they do not want them on their property, while in areas not "Open Range," the animal owner must fence the animals in or run they risk of having those animals "taken up" as estrays.

The AEWP site is within the Open Range and Open Range with Conditions designations of this ordinance, which are also labeled as Parcel A and Parcel B, respectively. According to Chapter 7.16.060, the conditions associated with Parcel B are as follows:

> Every person within the area described in Parcel B of this chapter owning or having charge, care, custody or control of any cow, bull, steer, horse, mule, jack, hinny, sheep or other stock, who willingly or knowingly permits the same to run at large in or upon any cultivated or improved land owned by any person other than the owner of such animals, unless the consent of the owner is first obtained, except upon a public highway under adequate supervision, is guilty of a misdemeanor. Animal control services for achieving the control of said animals, as provided by the county to enforce the provisions of this section, shall be charged to the owner or the person having charge, care, custody, or control of animals at large at the hourly rate as set forth in the fee schedule established by the board of supervisors.

Forestry Resources. No forest land is present within the AEWP boundary, as defined and designated by the California Department of Forestry and Fire Protection or the United States Department of Agriculture, Forest Service.

Areas of Critical Environmental Concern (ACEC). The BLM uses the ACEC designation to manage public land areas where special attention is necessary to protect and prevent irreparable damage to: important historical, cultural, and scenic values; fish or wildlife resources; or other natural systems or processes based on the specific ACEC management plan.

The ACEC designation may also be used to protect human life and safety from natural hazards. The BLM identifies, evaluates, and designates ACECs through its resource management planning process.

Allowable management practices and uses, mitigation, and use limitations, if any, are described in the ACEC specific planning document.

- *Middle Knob ACEC.* The Middle Knob ACEC is managed by the BLM, comprises 20,511 acres, and is designated as an ACEC because of its significant biological and cultural resources. The AEWP would be located adjacent to the southern boundary of this ACEC and would be potentially visible from the ACEC.
- *Horse Canyon ACEC.* The Horse Canyon ACEC is managed by the BLM under the Caliente Resource Management Plan, and consists of 1,530 acres designated as an ACEC because of its significant natural, cultural and historic resources. The AEWP would be located two miles northeast of this ACEC and would be potentially visible from this special land use area.

Back Country Byways. The Chimney Peak Back Country Byway is located over 50 miles northeast of the Project site. Therefore, no back country byways are in the vicinity of the AEWP.

National Recreation Areas. No national recreation areas are in the vicinity of the AEWP.

National Scenic and Historic Trails. The Cameron Ridge segment of the PCT passes northwest of the Project area, north of SR 58. The PCT comes closest to the AEWP in the southeastern corner of Section 30, T 32 S R 35 E, and passes within one mile of the Project at this location.

Wild and Scenic Rivers. The Kern Wild and Scenic River is located 48 miles north of the AEWP site. Therefore, no wild and scenic rivers are located within the immediate vicinity of the AEWP.

Wilderness Areas. There are no designated wilderness areas within the immediate vicinity of the AEWP site. Bright Star Wildness is the closest BLM-designated wilderness area, which is located 23.5 miles north of the project site.

Wilderness Study Areas. The closest wilderness study area is the Paiute Cypress WSA located 29 miles northwest of the AEWP site. Therefore, no wilderness study areas are in the immediate vicinity of the project site.

Donated Lands. The BLM can be the recipient and trustee of land donated by individuals or groups. Often such lands are donated with the expressed interest of preserving the resources that characterize these lands. In so doing, a restrictive instrument such as a conservation easement or deed restriction is attached to the donation and land that would control its use, often in terms of prohibiting development or change to the landscape. There is no record of such a donation and accompanying restrictive instrument associated with the AEWP site.

3.15.2 Applicable Regulations, Plans, and Standards

3.15.2.1 Federal

Federal Land Policy and Management Act (FLPMA) of 1976

The FLPMA establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. FLPMA Title V, Section 501, establishes BLM's authority to grant ROWs for generation, transmission, and distribution of electrical energy (FLPMA, as amended, 2001). BLM is responsible for responding to requests regarding the development of energy resources on BLM-administered lands in a manner that balances diverse resource uses and takes into account the long-term needs for renewable and non-renewable resources for future generations.

California Desert Conservation Area Plan

The AEWP would be located in an area governed by the CDCA Plan. The CDCA encompasses 25 million acres in southern California designated by Congress in 1976 through the FLPMA. The BLM manages about 10 million acres within the Plan, which includes areas of the Mojave, Sonoran, and Great Basin Deserts. Congress directed the BLM to prepare and implement a comprehensive long-range plan for the management, use, development, and protection of public lands within the CDCA. The CDCA Plan, as amended, is based on the concepts of multiple-use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for BLM-administered lands in the CDCA and establishes long-term goals for protection and use of the California desert.

The CDCA Plan, as amended in 1980, identifies wind energy development as an authorized use of public lands, consistent with the Plan and the NEPA. Consequently, public lands located in the CDCA are not restricted from wind energy development.

Farmland Protection Policy Act (7 U.S.C. Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. It additionally directs federal programs to be compatible with State and local policies for the protection of farmlands. Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the FPPA—Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994.

The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with State, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. The FPPA does not authorize the Federal Government to regulate the use of private or non-federal land or, in any way, affect the property rights of owners.

For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a federal agency or with assistance from a federal agency (NRCS 2012).

National Landscape Conservation System

The National Landscape Conservation System (NLCS) is the primary management framework for specially designated lands or Special Management Areas (SMAs). In June 2000, the NLCS was created by the BLM to bring some of the agency's premier areas into a single system. The NLCS designations include National Monuments, National Conservation Areas, Designated Wilderness Areas and Wilderness Study Areas, National Scenic and Historic Trails, and Wild, Scenic, and Recreational Rivers (BLM, 2011g).

Other special areas managed by the BLM outside of the NLCS framework include ACECs, Research Natural Areas, National Natural Landmarks, National Recreation Trails, and a variety of other area designations. The following summarizes the federal regulations, plans, and standards.

The BLM manages certain lands under its jurisdiction that possess unique and important historical, anthropological, ecological, biological, geological, and paleontological features. These features include undisturbed wilderness tracts, critical habitat, natural environments, open spaces, scenic landscapes, historic

locations, cultural landmarks, and paleontologically rich regions. Special management is administered with the intent to preserve, protect, and evaluate these significant components of our national heritage. Most special areas are either designated by an Act of Congress or by Presidential Proclamation, or are created under BLM administrative procedures.

Wilderness Act of 1964

National Wilderness Areas, designated by Congress, are defined by the Wilderness Act of 1964 as places "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring these lands are preserved and protected in their natural condition. Wilderness Areas, which are generally 5,000 acres or more in size, offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

With some exceptions, commercial enterprises, construction of temporary or permanent roads, use of motorized vehicles and other mechanical transport, aircraft landings, and construction of structures and other installations may not occur in wilderness areas.

3.15.2.2 State

California Department of Conservation (DOC), Division of Land Resource Protection

The DOC applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands, and these agricultural designations are used in planning for the present and future of California's agricultural land resources. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the DOC (DOC 2004). Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland is referred to as Farmland (DOC 2004).

- **Prime Farmland.** Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-up Land.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards,

cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Section 51200-51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. The Williamson Act program is administered by the DOC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit (DOC 2007).

California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also Section 51238 states that board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Section 51238.1.

Further, California Government Code Section 51238.1 allows a board or council to allow as compatible any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves.
- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.

- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into non-agricultural uses.

3.15.2.3 Kern County

The project boundaries are located predominately within the Kern County General Plan (KCGP) with portions also located within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The KCGP contains policies, goals, and implementation measures related to public health and safety, as discussed below. The Mojave Specific Plan does not contain provisions specific to special designations. Interim Rural Community Plans are put into place until a formal Specific Plan is adopted and the Cache Creek Interim Rural Community Plan does not contain provisions specific to special designations.

Kern County General Plan (KCGP)

The KCGP states that agriculture is vital to the future of Kern County and sets the goals of protecting important agricultural lands for future use and preventing the conversion of prime agricultural lands to other uses (e.g., industrial or residential). The KCGP includes three designations for agricultural land:

- **8.1 Intensive Agriculture** – Minimum parcel size is 20 acres gross. Devoted to the production of irrigated crops or having potential for such use;
- **8.2 Resource Reserve –** Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross. Devoted to areas of mixed natural resource characteristics including rangeland, woodland, and wildlife habitat which occur in an established County water district; and
- **8.3 Extensive Agriculture** – Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross. Devoted to uses involving large amounts of land with relatively low value-per-acre yields such as livestock grazing, dry-land farming, and woodlands.

The policies, goals, and implementation measures in the KCGP for Agricultural and Forest Resources applicable to the project are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below, but, as stated in Chapter 2, "Introduction," all policies, goals, and implementation measures in the KCGP are incorporated by reference.

Chapter 1. Land Use, Open Space, and Conservation Element

1.9 – Resource

Goals

- **Goal 1.** To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.
- **Goal 2.** Protect areas of important mineral, petroleum, and agricultural resource potential for future use.
- **Goal 5.** Conserve prime agriculture lands from premature conversion.

Policies

- **Policy 1.** Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.
- **Policy 2.** In areas with a resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with the General Plan.
- **Policy 5.** Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.
- **Policy 7.** Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.
- **Policy 11.** Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.
- **Policy 12.** Areas identified by the NRCS (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.
- **Policy 21.** The County shall encourage qualifying agricultural lands to participate in the Williamson Act program or Farmland Security Zone program.

Implementation Measures

- **Implementation Measure C.** The County Planning Department will seek review and comment from the County Engineering, Surveying, and Permit Services Department on the implementation of the National Pollution Discharge Elimination System for all discretionary projects.
- **Implementation Measure F.** Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.
- **Implementation Measure G.** Property placed under the Williamson Act/Farmland Security Zone Contract must be in a Resource designation.

Kern County Ordinance (Title 19 of the Ordinance Code of Kern County),

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to agricultural and forest resource issues related to the project.

- **Section 19.64.140(C):** Fencing shall be erected for each wind machine or on the perimeter of the total project. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed of four (4) strand barbed wire or materials of a higher quality. Fencing erected on the perimeter of the total project shall include minimum eighteen- (18-) inch by eighteen- (18-) inch signs warning of turbine dangers. Such signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress. Where perimeter fencing is utilized, the Planning Director may waive this requirement for any portion of the site where unauthorized access is precluded due to topographic conditions.
- **Section 19.64.140(D):** All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting therefrom "tie-ins' to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of the provision, engineered aboveground electrical power lines shall be allowed.

Williamson Act Standard Uniform Rules

Kern County has adopted a set of Agricultural Preserve Standard Uniform Rules that identify land uses that are considered compatible uses within agricultural preserves established under the Williamson Act. These rules are designed to restrict the uses of land enrolled in a Williamson Act contract to agriculture or other compatible uses. Agricultural uses include crop cultivation, grazing operations, commercial wind farms, livestock breeding, dairies, and uses that are incidental to agricultural uses. Other compatible uses include the erection of gas, electric, communications, water, and other similar public utilities.

3.16 Transportation and Public Access

This section describes existing conditions related to transportation and public access, including applicable plans, policies, and regulations. Information contained within this section was provided primarily by the *Traffic Analysis for the Alta East Wind Project*, April 21, 2011, prepared by CH2MHILL, which is included as Appendix H of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) and incorporated by reference herein.

3.16.1 Environmental Setting

Performance Criteria and Level of Service Concept

For California Environmental Quality Act (CEQA) purposes, defined performance criteria are utilized to determine if a proposed project causes a significant impact. The Level of Service (LOS) concept is used as an indicator of operating conditions on a roadway or at an intersection and is defined in categories ranging from A to F; where LOS A represents the best traffic flow conditions, and LOS F represents poor conditions. In other words, LOS A indicates free-flowing traffic, and LOS F indicates substantial congestion with stop-and-go traffic and long delays at intersections. Kern County's operational goal for intersection operation and roadway capacity is LOS D or better, on County maintained roadways. The California Department of Transportation (Caltrans) has an operational goal for intersection operation and roadway capacity of LOS C or better.

Table 3.16-1 provides the LOS criteria and characteristics for multilane highways.

Table 3.16-1. Level of Service Descriptions

LOS	V/C*	Characteristics
A	Up to 0.30	Free-flow operation exists.
B	0.31–0.49	Reasonably free-flow operation exists; the ability to maneuver within the traffic stream is only slightly restricted.
C	0.50–0.70	Travel speeds are still at or near free-flow, but the ability to maneuver within the traffic stream is noticeably restricted.
D	0.71–0.90	Travel speeds begin to decline with increasing flows; the ability to maneuver is more noticeably limited; and minor incidents can be expected to create queuing.
E	0.91–1.00	Operation is at or near capacity and is therefore volatile because virtually no useable gaps in the traffic stream appear; maneuverability is extremely limited; and any disruption to the traffic stream, such as vehicles entering from ramps or changing lanes, can cause disruptions.
F	Greater than 1.00	Breakdown in vehicular flow occurs, with queues forming behind major breakdown points, such as traffic incidents or recurring points of congestion.

*Volume to capacity (V/C) ratio of the facility, per Highway Capacity Manual 2000, Exhibit 21-2

Existing Regional and Local Access Roadway Facilities

The primary regional transportation corridors within the study area include State Route (SR) 14 and SR 58. The local circulation system near the Alta East Wind Project (AEWP) site consists of a private access road off Oak Creek Road (see Figure 2-1 in Appendix A). The local roadway characteristics are generally rural in nature, with limited access control. The following describes regional and local access roadways.

SR 14 (also called the Antelope Valley Freeway) is the principal north-south regional access route leading to the AEWP site. SR 14 is a two- and four-lane north/south State highway that intersects with

U.S. Highway 395 (U.S. 395) and connects the Los Angeles Basin, including the cities of Lancaster and Palmdale, to the Communities of Mojave, Rosamond, Lone Pine and Big Pine, the Cities of Bishop, California City, and Ridgecrest, and the Mammoth Mountain Resort area. Existing traffic conditions along relevant segments of SR 14 in the AEWP area are provided in Table 3.16-2.

SR 58 provides for interregional and interstate travel, and is one of two (2) major east/west thoroughfares through Kern County. SR 58 begins in San Luis Obispo County and enters Kern County near the Community of McKittrick, then runs east through the Cities of Bakersfield and Tehachapi and Communities of Mojave and Boron to the Kern County boundary with San Bernardino County. SR 58 also serves as an alternative route to Interstate 5, to and from the Central Valley. The route accommodates significant volumes of heavy trucks traveling between central and southern California. Within the vicinity of the AEWP area, SR 58 connects regional traffic with SR 14 and provides two (2) lanes in each direction. Existing traffic conditions along relevant segments of SR 58 in the AEWP area are provided in Table 3.16-2.

Oak Creek Road provides area access to the intersection of a private access easement west of the AEWP. Oak Creek Road is designated an Arterial/Major alignment by the Circulation Element of the Kern County General Plan (KCGP). West of SR 14, the most recent available traffic count data indicates that Oak Creek Road carried 3,100 average daily trips in 2007 (Kern County, 2009c).

Site Access

Access to the AEWP site is proposed from the west. Access to the site would be provided from the existing Cameron Ridge Road and would require minor roadway improvements for approximately 0.5 mile to allow for construction and other AEWP vehicles. An alternative access from the east would be provided via a bridge across the Los Angeles Aqueduct, proposed as part of the Alta Infill II Wind Energy Project.

Construction vehicle access will be provided through one primary access point, and one alternative access point. The primary access point will be from the west via the existing Cameron Ridge Road which extends through the operating Cameron Ridge project, owned by an affiliate of the project proponent. Minor improvements would be made on approximately a half mile of this road to allow for safe passage of construction and AEWP vehicles. AEWP-related traffic accessing the AEWP site from the west would travel along SR 58, then south on SR 14, and then west on Oak Creek Road and then north on Cameron Ridge Road, in order to access the site.

The alternative access point will be from the east side of the AEWP via a bridge across the Los Angeles Aqueduct. AEWP-related traffic accessing the AEWP site from the east would travel along SR 58, then south on SR 14, then west on Oak Creek Road, and then north along a private access road, crossing a bridge across the LA Aqueduct. A permanent access will traverse from the bridge, through the Alta Infill II Wind Energy Project along its southern boundary to provide access to the AEWP site. The bridge and north-south access road from Oak Creek Road were evaluated as part of the adjacent Alta Infill II Wind Energy Project, approved in October 2011. It is assumed that the bridge and access road will be constructed prior to development of the AEWP and no additional improvements are required; the technical analyses provided to Kern County assumed construction of the bridge during the same year as development of the AEWP, in order to provide a conservative analysis in the event that construction of the bridge and access road is delayed.

Other Transportation Facilities

Railways. An existing railroad line, owned by Union Pacific Railroad (UPRR), runs through the AEWP site running parallel and just south of SR 58. This UPRR line is also subdivided into a number of different dead end sidings used for offloading and loading railcars to the east and southeast of the AEWP site. A portion of this line would be crossed by the AEWP's internal transmission line connecting the portion of the AEWP north of SR 58 to the remainder of the AEWP. While the number of daily rail

operations is unknown and variable along both segments of this rail line, visual site reconnaissance has indicated that the railway is actively used.

Bicycle Routes. There are no bicycle routes or facilities such as designated bicycle lanes on the roads discussed in this section. As noted in Chapter 3.12 of this Draft EIS/EIR, the Cameron Ridge segment of the Pacific Crest Trail passes within one mile of the northwestern portion of the AEWP area, north of SR 58. This trail is assumed to include mountain bike activities.

Aircraft Traffic and Military Aviation. Four commercial airports are located within 10 miles of the AEWP site: the Mojave Air and Spaceport three (3) miles to the southeast, the Mountain Valley Airport 7.5 miles to the west, the Tehachapi Municipal Airport 9.5 miles to the west, and the California City Municipal Airport located 9.2 miles northeast.

The northern edge of the Mojave Air and Spaceport runway is located 3.1 miles southeast of the closest portion of the AEWP boundary. Portions of the AEWP boundary located within Section 26 are within Zone C of the Airport Land Use Compatibility Plan (ALUCP) and the entire section is within the Sphere of Influence for the Mojave Air and Spaceport. The closest proposed WTG is located 3.5 miles northwest of the runway and no WTGs or WE Zoning is proposed within the boundaries of the ALUCP or Sphere of Influence. The Mojave Air and Spaceport is continuously attended and operates three paved runways averaging 178 operations per day for the 12-month period ending May 13, 2010. Of these operations, 38 percent were local general aviation, 59 percent were transient general aviation, one percent were commercial, and one percent were air taxi (AirNav 2011e).

The boundary of Edwards Air Force Base, a military flight airspace, is located 9.5 miles southeast of the AEWP site. Edwards Air Force Base covers nearly 308,000 acres, and contains two parallel runways oriented northeast/southwest, Runways 4/22 left and right. Edwards Air Force Base is operated by the United States Air Force, and serves air force military aircraft (AirNav 2010d).

The Pontious Airport in Mojave is the nearest private airstrip, located 10 miles southeast of the AEWP boundary. The Pontious Airport consists of two private use airstrips, and permission is required prior to landing. (AirNav 2012b).

Public Access. Public access refers to the legal rights of citizens to access land for certain purposes without barriers or impediments. The affected environment related to public access includes recreational use of land by the public as well as other legal guarantees or limitations on access such as deeds, ROW, easements, leases, licenses, and permits. The majority of the AEWP site is open desert consisting of privately-owned land and land that is owned by the BLM. BLM lands in the area are located within the Middle Knob Motorized Access Zone, as identified in the West Mojave Plan amendment to the California Desert Conservation Area (CDCA) Plan. Primary recreation activities and resource uses occurring in the Zone are recreational vehicle touring/sightseeing, camping and hiking, hunting, domestic sheep and cattle grazing, utility corridor maintenance, communication site maintenance, wind energy, and mineral exploration (BLM, 2003).

Table 3.16-2. Existing Conditions Traffic Operations Summary

Roadway[1]	Segment Between	Median	Lanes[2]	Peak Hour Capacity per Lane[3]	2-Way AADT[4] (2009)	Peak Hour Volume[5] (2009)	V/C Ratio	LOS
SR 58 EB	Fairfax Road and SR 184	Divided	3	1800	36000	2535	0.47	B
SR 58 WB	Fairfax Road and SR 184	Divided	3	1800	36000	2975	0.55	C
SR 58 EB	SR 184 and Edison Road	Divided	2	1800	25000	1768	0.49	B
SR 58 WB	SR 184 and Edison Road	Divided	2	1800	25000	2075	0.58	C
SR 58 EB	SR 202 and Mill Street	Divided	2	1800	20900	1868	0.52	C
SR 58 WB	SR 202 and Mill Street	Divided	2	1800	20900	2192	0.61	C
SR 58 EB	Randsburg Cut-Off Road and SR 14	Divided	2	1800	14050	1034	0.29	A
SR 58 WB	Randsburg Cut-Off Road and SR 14	Divided	2	1800	14050	1214	0.34	B
SR 14 NB	Silver Queen Road and SR 58	Divided	2	1800	18300	1311	0.36	B
SR 14 SB	Silver Queen Road and SR 58	Divided	2	1800	18300	874	0.24	A
SR 14 NB	Rosamond Boulevard and Silver Queen Road	Divided	2	1800	17600	1380	0.38	B
SR 14 SB	Rosamond Boulevard and Silver Queen Road	Divided	2	1800	17600	920	0.26	A
SR 14 NB	County Line and Rosamond Boulevard	Divided	2	1800	31000	1967	0.55	C
SR 14 SB	County Line and Rosamond Boulevard	Divided	2	1800	31000	1311	0.36	B

Notes:
[1] EB/WB/NB/SB: eastbound/westbound/northbound/southbound
[2] per direction
[3] passenger cars/hour/lane
[4] vehicles/hour
[5] Total passenger cars/hour. Directional factors found in Caltrans District 9 Transportation Concept Report (2004) were applied to the 2009 two-way peak hour volumes provided by Caltrans to calculate the volume on the peak direction of travel. The raw peak hour volumes were also modified to reflect the effect of truck traffic (30% on SR 58 and 10% on SR 14, based Caltrans data). Truck trips were converted to passenger car by applying a Passenger Car Equivalent factor of 1.5.
Source: CH2MHILL, 2011c

3.16.2 Application Regulations, Plans, and Standards

Construction of the AEWP could affect access, traffic flow patterns, and parking on public streets and highways. Therefore, it is necessary for the project proponent and/or the construction contractor to obtain encroachment permits or similar legal agreements from the public agencies responsible for the affected roadways and other applicable ROWs. Such permits are needed for ROWs that would be affected by access road construction. For the AEWP, encroachment permits would be issued by, Caltrans, Kern County, and other affected agencies and companies.

3.16.2.1 Federal

Federal Aviation Administration (FAA)

The FAA regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to Title 49 Code of Federal Regulations (CFR) Part 77, any person/organization who intends to sponsor any of the following construction or alterations must complete the two-part FAA form 7460 for FAA approval of the following:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:
  - Within 20,000 feet of a public use or military airport, which exceeds a 100:1 surface from any point on the runway;
  - Within 10,000 feet of a public use or military airport, which exceeds a 50:1 surface from any point on the runway; and
  - Within 5,000 feet of a public use heliport, which exceeds a 25:1 surface.
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above noted standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

As noted above, these code sections address safety considerations for the transport of goods, materials, and substances and governs the transportation of hazardous materials, including types of materials and marking of the transportation vehicles.

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The AEWP would be located within the boundaries of the BLM's California Desert Conservation Area (CDCA). The CDCA, which covers 25 million acres of land, serves as the BLM's land use guide for management of these public lands. The BLM West Mojave Plan serves as a Habitat Conservation Plan and CDCA amendment (BLM, 2005b). On June 30, 2003 The BLM issued a Decision Record that designated a network of motorized vehicle access routes in the western Mojave Desert, and amended the CDCA Plan to include the route network as a component of the CDCA Plan. This decision followed the publication, in March 2003, of an environmental assessment (EA) for the Western Mojave Desert Off Road Vehicle Designation Project (BLM, 2003). The Designation Project EA assessed the environmental effects of adopting the motorized vehicle access network developed through the West Mojave planning process. Consideration of the access network in advance of the publication of the West Mojave Plan EIR/S was required to meet a court-mandated deadline for the BLM to issue a decision regarding route designation in the West Mojave plan area by June 30, 2003.

As presented in Figure 3.12-2 (Recreation) of Appendix A, existing motorized vehicle access routes occur within the portion of the AEWP site north of SR 58. For additional information on these existing BLM motorized vehicle access routes, refer to Sections 3.12 and 4.12, Recreation.

3.16.2.2 State

California Department of Transportation (Caltrans)

Caltrans has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. The following Caltrans regulations apply to potential transportation and traffic impacts of the AEWP (Caltrans, 2011a and 2011b):

- **California Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load).** Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.
- **California Street and Highway Code §§660-711, 670-695.** Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

3.16.2.3 Local

The AEWP boundaries are located predominately within the Kern County General Plan (KCGP) with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to transportation and public access. The KCGP and Mojave Specific Plan contain policies, goals, and implementation measures as described below.

Kern County General Plan (KCGP)

The policies, goals, and implementation measures in the KCGP for transportation applicable to the AEWP are provided below.

Chapter 2. Circulation Element

Section 2.1 Introduction

- **Goal 4.** Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.
- **Goal 5.** Maintain a minimum LOS D for all roads throughout the County.

Section 2.3.3 Highway Plan

- **Goal 1.** To carry out this plan in a manner consistent with needs and standards of the County.
- **Goal 2.** This plan proposes to improve access to Kern County using all available methods of transportation.
- **Goal 3.** This plan sets up a simple way for protecting road right-of-way. Protecting corridors for future transportation facilities is the most important transportation planning activity in any high growth area.
- **Goal 4.** To reserve right-of-way to meet future road needs that result from development allowed by land use plans.
- **Goal 5.** Maintain a minimum LOS D.

- **Policy 1.** Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.
- **Policy 2.** This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond year 2010. Where Planning Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert Regions for arterial right-of-way. The County shall routinely protect all mid-section lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and mid-section lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and mid-section "grid" will comprehensively apply to the Mountain Region.
- **Policy 3.** This plan's road width standards are listed below. These standards do not include State highway widths that would require additional right-of-way for rail transit, bike lanes and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.
  - Expressway [Four Travel Lanes] Minimum 110 foot right-of-way
  - Arterial [Major Highway] Minimum 110-foot right-of-way (County Standard 110 feet);
  - Collector [Secondary Highway] Minimum 90-foot right-of-way (County Standard 90 feet);
  - Commercial-Industrial Street Minimum 60-foot right-of-way (County Standard 60 feet);
  - Local Street [Select Local Road] Minimum 60-foot right-of-way; (County Standard 60 feet).
- **Implementation Measure A.** The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.

Section 2.3.4 Future Growth

- **Goal 1.** To provide ample flexibility in this plan to allow for growth beyond the 20 year planning horizon.
- **Policy 2.** The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. Utilization of the California Environmental Quality Act (CEQA) process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.
- **Policy 4.** As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards.

Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

- **Policy 5.** When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.
- **Policy 6.** The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements.
- **Implementation Measure A.** The County should relate traffic levels to road capacity and development levels. To accomplish this Roads Department and Planning Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.
- **Implementation Measure C.** Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.5.2 – Airport Land Use Compatibility Plan (ALUCP)

- **Goal 1.** Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.
- **Policy 1.** Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.
- **Policy 2**. To the extent legally allowable prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.
- **Implementation Measure A**. Review discretionary land use development applications within the airports influence area and the military base operating area as shown in the ALUCP for consistency.
- **Implementation Measure B.** Coordinate and cooperate with airport operators, the County Department of Airports, the California Department of Transportation, Division of Aeronautics, affected cities, Edwards Air Force Base, NAWS China Lake, and the U.S. Department of Defense on ALUCP, review of land use applications, public education and encroachment issues.

Chapter 4. Safety Element

4.6 – Wildland and Urban Fire

- **Policy 4**. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Kern County Airport Land Use Compatibility Plan (ALUCP)

The purpose of the Kern County Airport Land Use Compatibility Plan (ALUCP) is to establish procedures and criteria by which the County of Kern and affected incorporated cities can address compatibility issues when making planning decisions regarding airports and the land uses around them.

The following Kern County ALUCP policies apply to potential transportation and traffic impacts of the AEWP:

Chapter 3.

3.3 Airspace Protection

- **Section 3.3.1 – Height Limits.** The criteria for limiting the height of structures, trees, and other objects in the vicinity of an airport shall be set in accordance with Part 77, Subpart C, of the Federal Aviation Regulations and with the United States Standard for Terminal Instrument Procedures (TERPS).
- **Section 3.3.4 – FAA Notifications.** Proponents of a project which may exceed a Part 77 surface must notify the Federal Aviation Administration as required by FAR Part 77, Subpart B, and by the California State Public Utilities Code Sections 21658 and 21659.
- **Section 3.3.5 – Other Flight Hazards.** Land use characteristics which may produce hazards to aircraft in flight shall not be permitted within any airport's influence area. Specific characteristics to be avoided include:
  a. Glare, distracting lights, or light patterns which could be mistaken for airport lights;
  b. Sources of dust, steam, or smoke which may impair pilot visibility;
  c. Sources of electrical interference with aircraft communications or navigation; and
  d. Any use, especially landfills and certain agricultural uses, which may attract largeflocks of birds.
  e. Any light or series of lights which may cause visual discomfort or loss of orientation during critical phases of flight.

Chapter 4.

4.17 Military Aviation

- **Section 4.17.2.3 – Military Aviation Encroachment.** Towers – Obstructions such as cellular towers, radio towers, television towers and wind turbines that penetrate into airspace become a hazard to flight safety. Concentrated numbers of such structures can result in the loss of a route as useable for testing and training operations.

Kern County Ordinance (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of wind turbine generators (WTGs). The following provisions apply to transportation and traffic issues related to the AEWP.

Due to military air traffic restrictions, the WTGs would need to conform to the military height requirements at the time of AEWP permitting, as defined by Section 19.64 of the Kern County Zoning Ordinance and Figure 19.08.160 of that same document. On January 26, 2009, the Kern County Board of Supervisors approved a change to Figure 19.08.160, depicting two allowable maximum height zones for structures, 400-feet and 500-feet. This change became effective February 27, 2009. Within the AEWP area, Kern County Zoning Ordinance Figure 19.08.160 shows a maximum allowable structure height of 500 feet.

3.17 Vegetation Resources

Discussion of biological resources has been divided into two parts for the purpose of this document. The first element of the discussion focuses on Vegetation Resources and is located in Sections 3.17 (Setting) and 4.17 (Impact Analysis) of this document. The second element of the discussion focuses on Wildlife Resources and is discussed in Sections 3.21 (Setting) and 4.21 (Impact Analysis).

This section describes the existing environmental setting; vegetation communities; invasive, noxious weeds; special-status plant species; and state and federal jurisdictional areas that are present within the Alta East Wind Project (AEWP) site. It also lists the special-status plant species that have potential to occur but that were not observed during focused plant surveys.

The information and analysis that is presented in this section has been derived from published literature, federal and state databases, and site-specific investigations of the project area and adjacent locations, described as follows:

- Vegetation mapping (identified within the 2010 biological technical report and subsequent responses to data requests) and a jurisdictional delineation conducted by CH2MHILL, Inc. (CH2MHILL), and special-status plant surveys conducted by Garcia and Associates (GANDA) and Sycamore Environmental Consultants, Inc. (Sycamore) (CH2MHILL, 2011l and 2010g; GANDA, 2011a and 2010; Sycamore 2010);
- The California Department of Fish and Game (CDFG) Natural Communities List (CDFG, 2010);
- The CDFG Special Vascular Plants, Bryophytes, and Lichens List (CDFG, 2011a);
- The CDFG California Natural Diversity Database (CNDDB, 2011);
- The California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory (Cal-IPC, 2006);
- A Manual of California Vegetation, 2nd Edition (Sawyer et al., 2009);
- Review of relevant literature on biological resources in and around the project area; and
- Review of maps and aerial photographs.

3.17.1 Environmental Setting

The AEWP site is located in the western Mojave Desert, partially within the foothills of the Tehachapi Mountains. The region is characterized by rolling hills and desert flats, as well as the Tehachapi and Piute Mountains at the southern end of the Sierra Nevada. Many of the foothill and desert areas support operating wind farms. The region is located at the confluence of three ecotones: the Sierra-Tehachapi-Mojave Ecotone, the Central Valley Ecotone, and the Antelope Valley Ecotone (see Figure 3.17-1 in Appendix A). As such, a variety of habitats occur in the general region, including various desert scrub communities (most commonly creosote bush and saltbush scrubs), Joshua tree and pinyon/juniper woodlands, and conifer woodlands at higher elevations. Riparian habitats also occur in some areas, but are generally not widespread on the desert floor or foothill areas. Several areas have high biodiversity because of the region's location at the desert-mountain transition zone. The region contains at least four endemic animals and 13 endemic plants. There are a number of disjunct localities where plants and animals range into the western Mojave Desert far from their primary distribution (BLM, 2005g).

The Mojave Desert is known as the "high desert" because large portions lie at elevations between 2,500 and 4,000 feet. In the western Mojave Desert, temperatures occasionally fall below freezing in the winter, but regularly exceed 100 degrees Fahrenheit in the summer months. The western Mojave Desert lies within the rain shadow of the Sierra Nevada and Tehachapi Mountains to the north and west, and the San Gabriel and San Bernardino Mountains to the south. These ranges capture rainfall from storms originating over the Pacific Ocean and prevent all but the larger storms from reaching the desert. Summer thunderstorms

are not as common here as in the eastern Mojave and Sonoran Deserts, although infrequent storms can cause flooding, playa filling, and redirection of stream flow on alluvial fans (BLM, 2005g).

The vicinity of the AEWP site is sparsely developed and rural. Land uses in and adjacent to the project area consist of open space with scattered residences, off-highway vehicle use, wind developments, and livestock grazing. Existing developments within and surrounding the AEWP area include rights-of-way (ROWs) for underground pipelines; underground portions of the Los Angeles Aqueduct; Southern California Edison electric transmission lines; Union Pacific Railroad railroad siding, which is a short stretch of railroad track used to store rolling stock or enable trains on the same line to pass; and a Los Angeles Department of Water and Power electric transmission line easement. The Cameron Ridge segment of the Pacific Crest Trail passes northwest of the project area, north of State Route (SR) 58, which bisects the AEWP site. Existing wind developments occur adjacent to the west side of the AEWP site, and additional wind developments have been approved adjacent to portions of the site to the north, east, and south. An active mine (undetermined ore) is located adjacent to the northwestern site boundary.

Of the 2,592 acres that comprise the AEWP site, 2,024 acres are on federal land administered by the Bureau of Land Management (BLM). Most of the AEWP site is designated by the BLM's California Desert Conservation Area (CDCA) Plan as Multiple-Use Class M (Moderate Use). This class provides for a wide variety or present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause. Smaller portions of the site are designated Multiple Use Class L (Limited Use), which protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished. There are twenty-one (21) acres of unclassified public lands within the site. Unclassified lands are scattered and isolated parcels of public land in the CDCA, which have not been placed within multiple-use classes. These parcels are managed on a case-by-case basis, per the BLM Land Tenure Adjustment Element.

Elevations in the project area range between 3,000 and 4,300 feet above mean seal level. Elevation generally decreases from the west to the east, with the Tehachapi Mountains to the north, and the Horned Toad Hills within the western and central portions of the site. Narrow, steep-walled ephemeral drainages are common in the central portion of the site. Ephemeral water features on the site trend in a northwest to southeast direction. Cache Creek traverses the northern portion of the site, south of and roughly parallel to SR 58. Cache Creek is intermittent to ephemeral in the project area, and no perennial water sources or riparian vegetation occurs on site.

The majority of the AEWP site is comprised of desert scrub communities such as creosote bush scrub and brittlebush scrub, as well as California juniper woodland and Joshua tree woodland. Other vegetation communities include rabbitbrush scrub, California buckwheat and California buckwheat-saltbush scrub, cheesebush and cheesebush-bursage scrub, scalebroom scrub, and desert almond scrub. Disturbed and ruderal areas also occur. These vegetation communities are described in detail below.

3.17.2 Data Collection Methodology and Results

3.17.2.1 Vegetation Communities

Vegetation mapping within the AEWP site was completed through a combination of field surveys and aerial photo interpretation. Field surveys to identify vegetation communities on site were conducted by CH2MHILL biologists from May 26 to 28, 2009 and June 21 to 25, 2010. Additional field surveys were conducted in the spring and summer of 2011 following revisions to the site boundary. Classification of the vegetation communities in the project study area are based on the Terrestrial Natural Community Types used by CDFG's Vegetation Classification and Mapping Program and Natural Diversity Database

(CDFG, 2010). Descriptions of these types included observations from the field surveys as well as information from the Preliminary List of Terrestrial Natural Communities of California and A Manual of California Vegetation (MCV) (as described in CH2MHILL, 2010g).

Eleven (11) vegetation communities were mapped in the AEWP site as shown in Table 3.17-1 and on Figure 3.17-2 (located in Appendix A). Each community is described following the table.

None of the communities is considered sensitive (e.g., an unusual plant assemblage) by the BLM according to the CDCA Plan. However, two (2) communities are considered sensitive (i.e., highly imperiled) by the state (CDFG, 2010).

It should be noted that all vegetation maps are subject to some degree of imprecision due to several factors, including:

1. Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
2. Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.
3. Vegetation tends to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these included patches varies, depending on the minimum mapping units and scale of available aerial imagery.

Table 3.17-1. Vegetation Communities in the AEWP Site

Vegetation Community/ Land Cover	State Rarity Ranking	Project Site (acres)	Transmission Line (acres)[1]	Total Acreage
Joshua Tree Woodland	**S3**	732.5	253.3	985.8
California Juniper Woodland	S4	668.9	---	668.9
Brittlebush Scrub-Mormon Tea Scrub	S4	464.1	---	464.1
Creosote Bush Scrub	S5	289.4	43.5	332.9
California Buckwheat Scrub	S5	311.1	---	311.1
Scalebroom Scrub	**S3**	41.0	---	41.0
Disturbed-Ruderal	—	25.9	1.8	27.7
Cheesebush-Bursage Scrub	S4	24.3	---	24.3
Rabbitbrush Scrub	S5	22.3	---	22.3
California Buckwheat-Saltbush Scrub	S4	13.0	---	13.0
Cheesebush Scrub	S4	—	2.5	2.5
Total	—	**2592.5**	**301.0**	**2891.1**

1 – For the purposes of this analysis, the transmission line corridor is 200 feet wide.
Communities identified in **bold** are considered rare and worthy of consideration by the CDFG.
State Rarity Ranking:
S1: Fewer than 6 viable occurrences statewide, and/or up to 1,280 acres
S2: 6-20 viable occurrences statewide, and/or more than 1,280-6,400 acres
S3: 21-100 viable occurrences statewide, and/or more than 6,400-32,000 acres
S4: Greater than 100 viable occurrences statewide, and/or more than 32,000 acres
S5: Demonstrably secure because of its statewide abundance

Source: CH2MHILL, 2011l; CDFG, 2010; Sawyer et al., 2009.

Creosote Bush Scrub

Creosote Bush Scrub is a common and widespread community found throughout the Mojave Desert and is often the dominant plant community at elevations below 4,000 feet. This community is characterized by creosote bush (*Larrea tridentata*). Creosote bushes are generally widely spaced and range in height from 2 to 10 feet. Ground cover and associated species between the shrubs are highly variable depending on seasonal and local conditions such as moisture availability, soils, and level of disturbance. Creosote Bush Scrub is found growing on alluvial fans, bajadas, minor intermittent wash channels, and upland slopes and flats. Soils are typically well drained. This community is typically found at elevations ranging from 250 feet below sea level to 3,300 feet above sea level (-75 to 1,000 meters).

Creosote Bush Scrub is widespread in the eastern and central portions of the project area. In addition, patches of creosote bush scrub are found scattered throughout many other vegetation communities on the AEWP site. Creosote shrubs are relatively dense in the central, eastern, and southern areas of the project site and become more scattered to the north and east. Joshua trees (*Yucca brevifolia*) are relatively common but widely spaced and provide relatively low total cover. Diversity and abundance of associated species is variable across the project study area. Other shrubs that are present in Creosote Bush Scrub in the project area include California buckwheat (*Eriogonum fasciculatum*), Mormon tea (*Ephedra* spp.), box thorn (*Lyceum* spp.), cheesebush (*Hymenoclea salsola*), white bursage (*Ambrosia dumosa*), and narrow-leaf goldenbush (*Ericameria linearifolia*). Disturbance-tolerant species such as rubber rabbitbrush (*Ericameria nauseosa*), fiddleneck (*Amsinckia tessellata*), cheat grass (*Bromus tectorum*), red brome (*B. madritensis* ssp. *rubens*) and red-stem filaree (*Erodium cicutarium*) are common in many areas of this community. Despite the relatively high degree of disturbance, native forbs including penstemons (*Penstemon* spp.), desert trumpet (*Eriogonum inflatum*), primrose (*Camissonia* spp.), purple sage (*Salvia dorrii*), and brittle spineflower (*Chorizanthe brevicornu*) are also present in many of the open areas between the shrubs. Within the project area, many stands of Creosote Bush Scrub also support scattered Joshua trees (*Yucca brevifolia*; less than 10 percent cover), as well as small (less than 2-acre) inclusions of cheesebush, narrowleaf goldenbush, or a combination of both species. Because these inclusions are smaller than 2 acres (minimum mapping unit) they have not been mapped. In the central, eastern, and southern portions of the project area, extensive sheep grazing has contributed to areas with very limited vegetative diversity that, in addition to creosote bushes, supports abundant populations of non-native invasive species (e.g., red brome, cheatgrass, and Mediterranean grass).

Brittlebush-Mormon Tea Scrub

Brittlebush-Mormon Tea Scrub is a mosaic of Brittlebush (*Encelia farinosa*) Scrub and Mormon Tea Scrub. In this community, shrubs are typically less than 10 feet tall, habitat is more-or-less open, and scattered trees of less than 16 feet tall are present in some areas. Other associated species on the site include California juniper (*Juniperus californica*), white bursage (*Ambrosia dumosa*), silver cholla (*Cylindropuntia echinocarpa*), and Mojave cottonthorn (*Tetradymia stenolepis*). Native forbs present include penstemon, desert trumpet, primrose, and desert needlegrass (*Achnatherum speciosum*). Disturbance-tolerant species such as those described above (Creosote Bush Scrub) are common in some areas of this community. Soils are well drained and often quite rocky. This mixed community occurs in large portions of the southwest and north central areas of the project area.

Cheesebush Scrub

Cheesebush Scrub occurs in one wash within the AEWP transmission line. This community is typically found in a variety of disturbed habitats such as those that have been flooded, burned, and grazed. Shrubs in this community are open and offer intermittent cover. Typically, shrubs are less than 6.6 feet (2 meters) tall. Cheesebush Scrub grows in washes, valleys, and flats. Soils are shallow sandy, gravelly, or disturbed desert pavement. This community is typically found at elevations ranging from sea level to 5,000 feet (0 to 1,600 meters). Cheesebush is the dominant shrub, but other species present in this community include

Mormon tea, brittlebush, rubber rabbitbrush, California buckwheat, and creosote bush. Emergent Joshua trees may also be present. Sparse or seasonally present herbs include non-native bromes and fiddleneck.

Cheesebush-White Bursage Scrub

Cheesebush-White Bursage Scrub is a mosaic of Cheesebush Scrub (see above) and White Bursage Scrub. In the project area, this community is limited to a patch located in the northeastern portion of the AEWP site. Shrubs in this community are open and offer intermittent cover. Typically, shrubs are less than six (6) feet (1.8 meters) tall. Other species present in this community include Mormon tea, brittlebush, rubber rabbitbrush, California buckwheat, and creosote bush. Emergent Joshua trees may also be present. Sparse or seasonally present herbs include non-native bromes and fiddleneck.

Rabbitbrush Scrub

Small areas of the AEWP site, generally in locations that have been disturbed by fire or manmade causes, are covered by open stands of Rabbitbrush Scrub. The shrubs are generally small (less than about 3 feet tall) and well-spaced, with a variety of native and non-native herbs covering the ground layer. Rubber rabbitbrush is the dominant shrub, but other shrubs and subshrubs, including interior goldenbush, occur at lower cover values. The associated herbaceous layer is dominated by non-native annual grasses (e.g., cheat grass and red brome) and red-stem filaree. Rabbitbrush Scrub on the AEWP site has relatively low (20 to 40 percent) shrub cover overall, with high cover consisting of grasses and herbs. Even so, rabbitbrush is the most visually dominant species, and it makes up the bulk of biomass in the mapped rabbitbrush scrub. Because of its open shrub structure and high herb cover, Rabbitbrush Scrub on the AEWP site would be expected to support large numbers and diverse populations of reptiles, small mammals, and shrubland or grassland birds and, as a result, to be productive foraging habitat for raptors and mammalian mesopredators.

California Buckwheat Scrub

The California Buckwheat Scrub community is characterized by near complete dominance of California buckwheat. This community is found in large areas of the north and central portions of the project area and occurs in smaller scattered patches in the western portion of the project area. Other low shrubs are present but occur much more widely scattered than in the mixed woody scrub type. Creosote bush and Joshua tree are very uncommon to nearly absent. Common herbaceous species include Mojave aster (*Xylorhiza tortifolia*), gilia (*Gilia* sp.), and phacelia (*Phacelia* spp.).

California Buckwheat-Saltbush Scrub

The California Buckwheat-Saltbush Scrub community contains a mosaic of California Buckwheat Scrub (described above) and Saltbush Scrub. The predominant saltbush species present is four-wing saltbush (*Atriplex canescens*). This mixed community is found in the flats in the northeast portion of the site. Other shrubs that are present in the California Buckwheat-Saltbush Scrub community include cheesebush, Mormon tea, and narrowleaf brittlebush.

Scalebroom Scrub

Scalebroom Scrub is a shrub-dominated community restricted to floodplain habitats. Within the project site, this community is found along ephemeral stream channels. Dominant species include scalebroom (*Lepidospartum squamatum*), cheesebush, rubber rabbitbrush, and California buckwheat. Occasional Joshua trees or California junipers are found in this community. The adjacent alluvial benches grade into upland habitats. The California Department of Fish and Game (CDFG) considers Scalebroom Scrub a special-status community.

California Juniper Woodland

California Juniper Woodlands occur in large patches within the site, generally at the higher elevations. This open community consists of scattered California juniper and Utah juniper (*Juniperus osteosperma*) mixed with a low understory of California buckwheat scrub or brittlebush scrub. Occasional creosote bush shrubs are also present. Understory shrubs provide low to moderate cover.

Joshua Tree Woodland

Joshua Tree Woodlands occur in the upper reaches of the creosote bush scrub zone on deep valley soils or shallower hillsides. Joshua trees can occur as scattered individuals at lower elevations along drainages into saltbush communities, and their concentration increases with elevation. Areas with a minimum of 1 percent aerial cover of Joshua trees were classified as Joshua Tree Woodland. Within the project area, the understory is comprised of moderately dense, low-growing shrubs including creosote bush, white bursage, cheesebush, winterfat (*Krasheninnikovia lanata*), California buckwheat, Mormon tea, and brittlebush. On a near project-wide basis, the most common understory species in Joshua Tree Woodland is creosote bush. Herbaceous cover is similar to that described in the scrub communities above. The CDFG considers Joshua Tree Woodland as a special-status community, and the California Desert Native Plants Act (California Food and Agricultural Code, Division 23) requires a permit to remove individual Joshua trees.

Disturbed-Ruderal

Disturbed-Ruderal vegetation in the project area is characteristic of heavily disturbed sites such as roadsides, graded lands, or former agricultural lands. Disturbed-Ruderal areas have little overall vegetation cover, and what vegetation is present is dominated by non-native weeds, “weedy” native species, and escaped ornamental species. In the project area, many of the Disturbed-Ruderal areas have been affected by recreational off-highway vehicle use.

3.17.2.2 Nonnative and Invasive Weeds

Nonnative and invasive weeds are species of non-native plants of concern to the California Invasive Pest Council (Cal-IPC), the BLM, and other land managers. They are of particular concern in wild lands because of their potential to degrade habitat and disrupt the ecological functions of an area (Cal-IPC, 2006). Specifically, nonnative and invasive weeds can alter habitat structure, increase fire frequency and intensity, decrease forage (including for special-status species), exclude native plants, and decrease water availability for both plants and wildlife. Soil disturbance creates conditions favorable to the introduction of new weeds or the spread of existing populations. Construction equipment, fill, and mulch can act as vectors introducing nonnative, invasive weeds into an area.

Ten nonnative, invasive plant species were identified in the AEWP area during botanical surveys (Table 3.17-2). These species include redstem stork's bill (*Erodium cicutarium*), flixweed (*Descurainia sophia*), shortpod mustard (*Hirschfeldia incana*), wall barley (*Hordeum murinum*), tumble mustard (*Sisymbrium altissimum*), oriental hedge mustard (*Sisymbrium orientale*), and four annual grasses including ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and Mediterranean grass (*Schismus* sp.). A record exists in the UC Davis Herbarium for one additional invasive species, tamarisk (*Tamarix parviflora*), that was identified in Cache Creek in the general project area (CCH, 2011). However, this species was not identified in any survey areas.

Eight of these species are listed in the Cal-IPC Invasive Plant Inventory Database for the Mojave Desert region (Cal-IPC, 2006); the remaining species are not included in the inventory database for the Mojave Desert region. None of these species is included on the Federal Noxious Weed List (7 CFR 360, Section 360.200), nor is any on the Noxious Weed Species List—Section 4500 of the Food and Agriculture Code (CDFA [California Department of Food and Agriculture], 2010).

Portions of the project area have been grazed by sheep for an unknown period of time, a disturbance regime that seems to have favored the establishment and spread of many species of invasive plants. Widespread and abundant plant species observed to occur at various densities throughout the AEWP area include cheatgrass, red brome, Mediterranean grass, and redstem stork's bill. Species of invasive plants occurring in more discrete areas within the project site include ripgut brome, flixweed, shortpod mustard, wall barley, tumble mustard, and oriental hedge mustard (GANDA, 2011a). These species were mapped in the project area and are shown on Figure 5 of the *Alta East Wind Energy Project 2011 Botanical Survey Report* (GANDA, 2011a).

Table 3.17-2. Nonnative and Invasive Weeds Observed in the AEWP Site

Species	Overall Cal-IPC Rating	Sites Mapped	Estimated Number Observed
Bromus diandrus Ripgut brome	Moderate	3	320
Bromus madritensis ssp. *rubens* Red brome	High	Widespread; not mapped	Abundant throughout project area
Bromus tectorum Cheatgrass	High	Widespread; not mapped	Abundant throughout project area
Descurainia sophia Flixweed	Limited	4	53
Erodium cicutarium Redstem stork's bill	Limited	Widespread; not mapped	Abundant throughout project area
Hirschfeldia incana Shortpod mustard	Moderate	6	160
Hordeum murinum Wall barley	Moderate	14	3,801
Schismus sp. Mediterranean grass	Limited	Widespread; not mapped	Abundant throughout project area
Sisymbrium altissimum Tumble mustard	Impacts not known (not yet reviewed)	4	96
Sisymbrium orientale Oriental hedge mustard	N/A	9	130

Sources: GANDA, 2011a; Cal-IPC, 2006

3.17.2.3 Special-Status Plant Species

Botanical surveys were conducted by Sycamore on a previous AEWP configuration from 2 to 7 May, 2010. The study area consisted of 1,424 acres. Parallel transects were walked by three botanists throughout the entire 1,424-acre study area to search for special-status plants. Transect spacing was less than 200 feet to a maximum of 250 feet. All plant species observed were either identified on-site or were collected and identified later. All plants were identified to the level necessary to determine legal status (Sycamore, 2010). Summer botanical surveys of the same study area were conducted from June 29–July 2 and from July 20–23 and July 27, 2010 by GANDA. These surveys were intended to supplement the spring 2010 surveys conducted by Sycamore (GANDA, 2010).

Botanical surveys were conducted by GANDA from April 18-20, May 9-13, and 16, 2011. A second round of summer surveys of habitats determined to be potentially suitable for later-blooming species was conducted from June 21-22, 2011. The purpose of the surveys was to locate and map special-status plant species, species afforded protection under the California Desert Native Plants Act (CDNPA), “large” Joshua trees (*Yucca brevifolia*), and invasive plant species. Large Joshua trees on the project site were

defined as those that are greater than nine feet tall, more than eight feet wide, and include more than seven branches. The transect-based botanical surveys followed the protocols and guidelines of the CDFG, the United States Fish and Wildlife Service (USFWS), and the California Native Plant Society (CNPS) (as described in GANDA, 2011a). The spring/summer 2011 surveys focused on the footprint of the AEWP design (e.g., turbine locations, access roads, staging areas, the substation, and the operations and maintenance facility). The survey area for the 2011 surveys consisted of 917 acres. Surveys were floristic in scope, meaning that all plants found in identifiable condition were identified to the taxonomic level necessary to determine their rarity or listing status (GANDA, 2011a).

Prior to conducting the botanical surveys, research was conducted to identify special-status plant species with potential to occur on the AEWP site. For each potentially occurring species, information was compiled on conservation status, distribution, habitat characteristics, flowering time, presence in the project region, and characteristics used in field identification. A species was determined to have potential to occur within the project area if its known or expected geographic range includes the project area or vicinity, and if its known or expected habitat is found within or near the project area. For the AEWP, the project area and vicinity includes the western Mojave Desert, Tehachapi Mountains, and southern Sierra Nevada. A preliminary list of potentially occurring special-status plants was derived from several sources. Quadrangle-based searches of the CNPS Inventory and the CNDDB RareFind3 database were used to identify potentially occurring special-status plants (see GANDA, 2011a; CNDDB, 2011). The 7.5' USGS quadrangles containing the project area (Mojave and Monolith), and ten additional surrounding USGS 7.5' quadrangles (Bissell, Sanborn, Soledad Mountain, Willow Springs, Tehachapi North, Tehachapi South, Tehachapi NE, Cache Peak, Tylerhorse Canyon, and Mojave NE) were included in the searches. A search of the CNPS database for List 1-3 taxa in these quadrangles returned 15 taxa. Four additional taxa were added to this list, based on recent observations at nearby project sites, for a total of 19 species. The CNDDB database search failed to return any additional CNPS List 1-3 taxa. CNPS List 4 species with the potential to occur in the vicinity of the AEWP were identified by searching the CNPS Inventory for all of Kern County. Seventy-one taxa were identified in this search. The combined List 4 and List 1-3 searches returned a total of 90 taxa, but only 45 of these were retained for potential occurrence in the project area. The others were excluded from consideration, because they either occurred well outside of the known distribution of the taxon, occurred in habitats not represented in the project area, occurred well outside of the known elevational range of the species, or were specific to soil types not believed to occur in the project area (GANDA, 2011a).

Reference site visits were conducted in 2011 for eight species of special-status plants with potential to occur at the AEWP site: alkali mariposa lily (*Calochortus striatus*), pygmy poppy (*Canbya candida*), Death Valley sandmat (*Chamaesyce vallis-mortae*), Mojave spineflower (*Chorizanthe spinosa*), Mojave tarplant (*Deinandra mohavensis*), Tracy's eriastrum (*Eriastrum tracyi*), golden goodmania (*Goodmania luteola*), and Bakersfield cactus (*Opuntia basilaris* var. *treleasei*).

It should be noted that rainfall in the vicinity of the AEWP area preceding the 2011 botanical surveys was significantly below average. The historic (1971 to present) average annual precipitation in Mojave, California, located 3.5 miles southeast of the AEWP area is 6.6 inches, and the average October through May precipitation is 5.87 inches. For October 2010 through May 2011, the total precipitation in Mojave was 1.34 inches (GANDA, 2011a). Therefore it is possible that several special-status annuals may occur in the AEWP area, but were not detectable during the 2011 botanical surveys.

Special-status plant species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and other special-status species are of relatively limited distribution and typically require unique habitat conditions. Special-status plant species are defined as meeting one or more of the following criteria:

- Listed as threatened or endangered or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA) or federal ESA;

- Listed as a species of special concern by CDFG;
- Included in the California Native Plant Society's (CNPS) and CDFG rare plant ranking system: plants "presumed extinct in California" (California Rare Plant Rank [CRPR] 1A), plants "rare or endangered in California" (CRPR 1B and 2), as well as CRPR 3 and 4 species;
- Plants listed as rare under the California Native Plant Protection Act;
- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region or is so designated in local or regional plans, policies, or ordinances; or
- Any other species receiving consideration during environmental review under the California Environmental Quality Act (CEQA).

The BLM designates sensitive species as those requiring special management considerations to promote their conservation and reduce the likelihood and need for future listing under ESA. BLM Sensitive Species (BLM, 2010d) include all federal candidate and federally delisted species which were so designated within the last five (5) years, and CRPR 1B species that occur on BLM lands. For the purposes of this analysis, all BLM Sensitive Species are considered to be special-status species.

Table 3.17-3 lists all special-status plant species evaluated during the analysis that are present or whose potential occurrence in the AEWP site was considered. The federal and State listed endangered Bakersfield cactus, pale-yellow layia (*Layia heterotricha*: CRPR 1B.1), and adobe yampah (*Perideridia pringlei*: CRPR 4.3). Detailed descriptions of these species and their occurrence in the AEWP site follow Table 3.17-3.

For 2011, inventoried and mapped species afforded protection under the California Desert Native Plants Act (CDNPA) included 373 silver cholla (*Opuntia echinocarpa*), 728 beavertail cactus (*O. b.* var. *basilaris*), 112 Bakersfield cactus, and 1,433 chaparral yucca (*Yucca whipplei*). A total of 1,135 Joshua trees meeting the minimum size criteria for "large" trees were mapped during the surveys. In 2010, 363 Bakersfield cacti were mapped throughout the AEWP site.

A variety of special-status species have the potential to occur at the AEWP. Many of these special-status species have broad distributions and ranges and could potentially occur in suitable habitats across the entire project area. The potential for occurrence was ranked based on the following criteria:

- **Present**: Taxon (species, subspecies, or variety) was observed within the AEWP area during surveys or has been documented in the AEWP area.
- **High**: Both a documented record exists of the taxon within the AEWP area or immediate vicinity (i.e., within five [5] miles of the project site) and the environmental conditions (including soil type) associated with taxon presence occur within the AEWP area but were not detected during AEWP-specific biological surveys.
- **Moderate**: Either a documented record exists of the taxon within the immediate vicinity of the AEWP area or the environmental conditions (including soil type) associated with taxon presence occur within the AEWP area and the AEWP area is within the known distribution for this taxon.
- **Low**: No records exist of the taxon occurring within the AEWP study area or immediate, the environmental conditions (including soil type and elevation factors) associated with taxon presence are marginal within the AEWP area, and/or the taxon is conspicuous and not detected during the most recent biological surveys.
- **Not Likely to Occur**: No known records exist and the AEWP area lacks suitable habitat requirements (including soil and elevation factors).

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Allium atrorubens var. *cristatum* Inyo onion	Federal – None State – None BLM – None CRPR – 4.3	Joshua tree woodland, pinyon/juniper woodland - sandy or rocky sites. 3,940–8,400 feet.	Apr-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 42 miles northeast of the AEWP area in the Owens Peak watershed. The AEWP is just below the known elevation range for this species.
Allium shevockii Spanish needle onion	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Pinyon/juniper woodland, on rocky slopes, metamorphic outcrops, and in upper montane coniferous forest, on metamorphic or granitic talus slopes at elevations of 2,790–8,200 feet.	May-Jun	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is eight (8) miles west of the AEWP area near upper Horse Canyon, about four miles upstream from Sand Canyon.
Androsace elongata ssp. *acuta* California androsace	Federal – None State – None BLM – None CRPR – 4.2	Chaparral, cismontane woodland, coastal sage scrub, pinyon and juniper woodland, valley and foothill grassland, meadows and seeps - highly localized and often overlooked little plant. 1,000–3,940 feet.	Mar-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is less than 10 miles west of the AEWP area.
Astragalus hornii var. *hornii* Horn's milk-vetch	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Meadows and seeps, playas - lake margins, alkaline sites. 200–2,790 feet.	May-Oct	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 15 miles south of the AEWP area in Willow Springs.
Calochortus striatus Alkali mariposa lily	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps in moist alkali soils, in mesic and alkali habitats at elevations of 200–5,300 feet.	Apr-Jun	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 12 miles south of the AEWP area along Sierra Highway between Sopp Road and Backus Road.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Camissonia kernensis ssp. *kernensis* Kern County evening-primrose	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, Joshua tree woodland, pinyon and juniper woodland - sandy or gravelly granitic sub-strates. 2,607–7,029 feet.	Mar-May	**High.** The species was not observed in surveys conducted during the flowering period. Suitable habitat occurs on site. The nearest known location is four (4) miles south of the AEWP area; about three (3) miles west of Hwy 14 on Oak Creek Drive.
Canbya candida White pygmy-poppy	Federal – None State – None BLM – None CRPR – 4.2	Joshua tree woodlands, Mojavean desert scrub and pinyon/juniper woodland in sandy granitic soils from 1,900–4,800 feet.	Mar-Jun	**High.** The species was not observed in surveys conducted during the flowering period. Suitable habitat occurs on site. The nearest known location is four (4) miles east of the AEWP area, two (2) miles north of Mojave.
Castilleja plagiotoma Mojave paintbrush	Federal – None State – None BLM – None CRPR – 4.3	Sagebrush scrub, Joshua tree, pinyon, juniper woodland, conifer forest; Transverse Ranges, S Sierra Nevada and interior Coast Ranges; about 1,000-8,200 feet.	Apr-Jun	**High.** The species was not observed in surveys conducted during the flowering period. The nearest known location is six (6) miles west of the AEWP area near the intersection of Sand Canyon and Tranquility Roads.
Chamaesyce [*Euphorbia*] *vallis-mortae* Death Valley sandmat	Federal – None State – None BLM – None CRPR – 4.2	Arid, sandy soils; shrub-lands; southern Owens Valley, western Mojave Desert, and adjacent foothills; about 700-4,800 feet.	May-Oct	**Moderate.** The species was not observed in surveys conducted during the flowering period. Suitable habitat is present on site. The nearest known location is about 12 miles north of the AEWP area.
Chorizanthe spinosa Mojave spineflower	Federal – None State – None BLM – None CRPR – 4.2	Desert shrubland, sea level to about 4,300 feet; Kern, LA and San Bernardino Counties.; W Mojave Des, east to Rabbit Springs	Mar-Jul	**High.** The species was not observed in surveys conducted during the flowering period. The nearest known location is five (5) miles southeast of the AEWP area in Mojave.
Clarkia xantiana ssp. *parviflora* Kern Canyon clarkia	Federal – None State – None BLM – None CRPR – 4.2	Chaparral, valley and foothill grassland, cismontane woodland, Great Basin scrub - sandy or rocky substrate - dry slopes. 2,310–11,950 feet.	May-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 26 miles northwest of the AEWP area about two (2) miles west of Kelso Valley Road, off of road to Piute Mountain.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Cordylanthus rigidus ssp. *brevibracteatus* Short-bracted bird's-beak	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest - openings, granitic. 3,000–7,000 feet.	Jul-Aug	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 12 miles west of the AEWP area in Antelope Canyon south of Tehachapi.
Deinandra [*Hemizonia*] *mohavensis* Mojave tarplant	Federal – None State – Endangered BLM – Sensitive CRPR – 1B.3	Riparian scrub, chaparral - low sand bars in river bed; mostly in riparian areas or in ephemeral grassy areas. 2,100-5,250 feet.	Jun-Oct (Jan)	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is about 14 miles northwest of the AEWP area near Cutterbank Springs.
Delphinium gypsophilum ssp. *gypsophilum* Gypsum-loving larkspur	Federal – None State – None BLM – None CRPR – 4.2	Chenopod scrub, cismontane woodland, valley and foothill grassland. 0–6,000 feet.	Feb-May	**High.** The species was not observed in surveys conducted during the flowering period. The nearest known location is three (3) miles west of the AEWP area on the north slope of Tehachapi Pass.
Delphinium parryi ssp. *purpureum* Mt. Pinos larkspur	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. 3,000–8,000 feet.	May-Jun	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 12 miles north of the AEWP area near Emerald Mountain.
Dudleya abramsii ssp. *calcicola* Limestone dudleya	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, pinyon and juniper woodland - rocky places on limestone. 1,640–8,528 feet.	Apr-Aug	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 17 miles northwest of the AEWP area in the southern Piute Mountains.
Eriastrum hooveri Hoover's eriastrum	Federal – Delisted State – None BLM – None CRPR – 4.2	Chenopod scrub, valley and foothill grassland, pinyon and juniper wood-land - on sparsely vegetated alkaline alluvial fans; also in the Temblor Range on sandy soils. 160–3,000 feet.	Mar-Jul	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 22 miles south of the AEWP area on the southwest edge of Rosamond Dry Lake.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Eriastrum tracyi Tracy's eriastrum	Federal – None State – Rare BLM – Sensitive CRPR – 1B.2	Chaparral, cismontane woodland – gravelly shale or clay; often in open areas. Tehachapi Mountains through W Sierra Nevada, to NW Calif.; about 1,000–3,200 feet.	Jun-Jul	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 12 miles north of the AEWP area, about 1.5 miles northeast of Emerald Mountain.
Eriogonum kennedyi var. *pinicola* Kern buckwheat	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Chaparral, pinyon/juniper woodland and dry rocky ridges in Mennonite clay soils at 4,400–6,400 feet.	May-Jun (Jul)	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is four (4) miles northeast of the AEWP area on a ridge south of Pine Tree Canyon. However, potential habitat for this species is limited.
Eriophyllum mohavense Barstow woolly sunflower	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Desert chenopod scrub, Mojavean desert scrub, desert playas - mostly in open, silty or sandy areas w/saltbush scrub, or creo-sote bush scrub, barren ridges or margins of playas. 1,640–3,150 feet.	(Mar), Apr-May	**Low.** The species was not observed in surveys conducted during the flowering period. Suitable habitat occurs on site, but the AEWP area may be just out of the elevation range for this species. The nearest known location is Edwards Air Force Base 20 miles E of the AEWP area.
Gilia interior Inland gilia	Federal – None State – None BLM – None CRPR – 4.3	Joshua tree woodlands, oak woodlands, conifer forest; S Sierra Nevada and Tehachapi Mountains; about 2,300-5,600 feet.	Mar-May	**Moderate.** The species was not observed in surveys conducted during the flowering period. Suitable habitat occurs on site. The nearest known location is 23 miles south of the AEWP area west of Lancaster at 125th St. & Calif. Hwy 138.
Gilia latiflora ssp. *cuyamensis* Cuyama gilia	Federal – None State – None BLM – None CRPR – 4.3	Pinyon and juniper woodland - sandy flats, lower river valleys. 1,970–6,560 feet.	Apr-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 33 miles south of the AEWP area in the vicinity of Ritter Ridge on the south side of the Antelope Valley.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Goodmania luteola Golden goodmania	Federal – None State – None BLM – None CRPR – 4.2	Meadows, Mojavean desert scrub, playas, valley and foothill grassland - in the Central Valley from Madera County to Kern County. 70–7,220 feet.	Apr-Aug	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 21 miles east of the AEWP area, eight (8) miles north of Muroc.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Coastal salt marshes, playas, valley and foothill grassland, vernal pools - usually found on alkaline soils in playas, sinks, and grasslands. 0–4,000 feet.	Feb-Jun	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 12 miles west of the AEWP area in Tehachapi.
Layia heterotricha Pale-yellow layia	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Cismontane woodland, pinyon/juniper woodland, as well as valley and foothill grassland where soil is alkaline or fine, friable clay at elevations of 984–5,592 feet.	Mar-Jun	**Present.** Three individuals were mapped at three separate locations within the 2011 survey area. Additional suitable habitat is present on site.
Loeflingia squarrosa var. *artemisiarum* Sagebrush loeflingia	Federal – None State – None BLM – None CRPR – 2.2	Washes, sandy areas and stabilized low sand dunes and flats with sagebrush scrub from 2,296–5,413 feet.	Apr-May	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 10 miles southeast of the AEWP area northeast of Acton.
Mentzelia eremophila Solitary blazing star	Federal – None State – None BLM – None CRPR – 4.2	Desert canyon slopes, washes, roadsides; eastern Kern County, NW San Bernardino County; and S Inyo County; about 2,300–4,000 feet.	Mar-May	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is nine (9) miles north of the AEWP area on the east side of Barren Ridge, about 7.5 miles northwest of California City.
Microseris sylvatica Sylvan microseris	Federal – None State – None BLM – None CRPR – 4.2	Grasslands, chaparral, sagebrush scrub, oak, pinyon, or juniper woodland; about 100–4,900 feet.	Mar-Jun	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 12 miles west of the AEWP area in Tehachapi.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Mimulus pictus Calico monkeyflower	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Broadleaved upland forests and cismontane oak woodland habitats with granitic soils at 330–4,290 feet.	Mar-May	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is six (6) miles northwest of the AEWP area near a tributary to Cache Creek/ Sand Canyon, northeast of Monolith.
Monardella linoides ssp. *oblonga* Tehachapi monardella	Federal – None State – None BLM – Sensitive CRPR – 1B.3	Lower montane coniferous forest, upper montane coniferous forest, pinyon and juniper woodland - on dry slopes of yellow pine forest, decomposed granitic soils; also in roadside disturbed areas. 5,560–8,100 feet.	Jun-Aug	**Not Likely to Occur.** The species was not observed in surveys conducted outside of the flowering period, but the species is a perennial and would have been detected if present. No suitable habitat is present. The nearest known locations are eight (8) miles north and east of the AEWP area.
Muilla coronata Crowned muilla	Federal – None State – None BLM – None CRPR – 4.2	Desert shrublands and woodlands, bajadas, about 3,300–5,300 feet; Tulare and Inyo counties south through Kern, LA and San Bernardino Counties, and W Nevada.	Mar-Apr (May)	**Moderate.** The species was not observed in surveys conducted during the fruiting period. The nearest known location is seven (7) miles west of the AEWP area off of Oak Creek Rd., 8.9 miles west of Mojave.
Navarretia setiloba Piute Mountains navarretia	Federal – None State – None BLM – Sensitive CRPR – 1B.1	Cismontane woodland, pinyon/juniper woodland, and valley and foothill grassland habitats; heavy soils, such as clay or gravelly loam, at elevations of 1,148–6,889 feet.	Apr-Jul	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is 24 miles northwest of the AEWP area on Piute Mountain Road, less than three (3) miles from Caliente Bodfish Road.
Nemacladus gracilis Slender nemacladus	Federal – None State – None BLM – None CRPR – 4.3	Cismontane woodland, valley and foothill grass-land - sandy or gravelly places. 400–6,270 feet; LA to Kern and Merced Counties.	Mar-May	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is nine (9) miles west of the AEWP area in Oak Creek Canyon, 1.8 miles southwest of intersection of Oak Creek Rd and Tehachapi Willow Springs Road.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Nemacladus secundiflorus var. *secundiflorus* Large-flowered nemacladus	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, valley and foothill grassland - dry, sandy to gravelly flats and slopes. 660–6,560 feet.	Apr-Jun	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 45 miles north of the AEWP area on Greenhorn Mountain.
Opuntia basilaris var. *treleasei* Bakersfield cactus	Federal – Endangered State – Endangered BLM – Sensitive CRPR – 1B.1	S Central Valley, W Tehachapi Mountains; also reported from Mojave area. Chenopod scrub, valley and foothill grassland, cismontane woodland – coarse or cobbly well-drained granitic sand on bluffs, low hills, and flats within grassland. 460 to 5,000 feet.	Apr-May	**Present.** 112 individual plants were mapped within the 2011 botanical survey area. In 2010, 363 Bakersfield cacti were mapped throughout the project site.
Pentachaeta fragilis Fragile pentachaeta	Federal – None State – None BLM – None CRPR – 4.3	Chaparral, lower montane coniferous forest - sandy soils. 100–7,000 feet.	Mar-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 17 miles north of the AEWP area in Kelso Valley.
Perideridia pringlei Adobe yampah	Federal – None State – None BLM – None CRPR – 4.3	Generally heavy soils in woodlands or grasslands; Coast Ranges, S Sierra Nevada and W Transverse Ranges; Tulare and Monterey Counties S to N Los Angeles County; about 1,000-6,000 feet.	Apr-Jun (Jul),	**Present.** Two individuals were mapped in two separate locations within the 2011 botanical survey area. About 30 to 40 individuals were mapped in the southwest corner of the site in spring 2010. Summer 2010 surveys documented a total of 23 plants at six sites within the project area.
Phacelia cicutaria var. *hubbyi* Hubby's phacelia	Federal – None State – None BLM – None CRPR – 4.2	Chaparral, coastal scrub, valley and foothill grass-land - gravelly, rocky areas and talus slopes. 0–3,300 feet.	Apr-Jun	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 17 miles north of the AEWP area near the Jawbone area.
Phacelia nashiana Charlotte's phacelia	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Joshua tree, pinyon/juniper woodlands, Mojave desert scrub on east facing slopes of Tehachapi Mountains in sandy to rocky soils from 1,900–7,300 feet.	Mar-Jun	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known location is nine (9) miles northeast of the AEWP area on an east slope of Barren Ridge, about 4.5 miles southwest of the mouth of Pine Tree Canyon.

Table 3.17-3. Special-Status Plants Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat and Elevation	Blooming Period	Potential to Occur
Sclerocactus polyancistrus Mojave fish-hook cactus	Federal – None State – None BLM – None CRPR – 4.2	Joshua tree woodland, Mojavean desert scrub, Great Basin Scrub - well-drained soil, on rocky gravelly mesas, slopes & outcrops; sometimes on limestone. 1,800–7,500 feet.	Apr-Jul	**Low.** The species was not observed in surveys conducted during the flowering period. The nearest known location is 25 miles north of the AEWP area in Red Rock Canyon.
Streptanthus cordatus var. *piutensis* Piute Mountains jewel-flower	Federal – None State – None BLM – Sensitive CRPR – 1B.2	Broadleaved upland forest, closed-cone coniferous forest, pinyon/juniper woodland in clay or metamorphic soils at elevations of 3,590–5,690 feet.	May-Jul	**Not Likely to Occur.** The species was not observed in surveys conducted during the flowering period. No suitable habitat is present. The nearest known location is seven (7) miles northwest of the AEWP area on Sweetwater Ridge southeast of Cache Peak.
Viola purpurea ssp. *aurea* Golden violet	Federal – None State – None BLM – Sensitive CRPR – 2.2	Great Basin scrub and pinyon/juniper woodlands in sandy soils and dry, sandy slopes at elevations 3,300–6,700 feet.	Apr-Jun	**Moderate.** The species was not observed in surveys conducted during the flowering period. The nearest known record is five (5) miles south of the AEWP area near Mojave Station, but the plants at this location were misidentified.

California Rare Plant Rank (CRPR):
1A – Presumed extinct in California
1B – Rare or endangered in California and elsewhere
2 – Rare or endangered in California, more common elsewhere
3 – Plants for which more information is needed (Review list)
4 – Plants of limited distribution (Watch List)
Threat Rank Extension:
0.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 = Fairly endangered in California (20-80% occurrences threatened)
0.3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)
BLM Sensitive = Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. BLM Sensitive species also include all federal Candidate species and federal Delisted species which were so designated within the last five (5) years, and CRPR 1B plant species that occur on BLM lands.

Sources: GANDA, 2011a; CNDDB, 2011; CDFG, 2011a.

Bakersfield cactus *(Opuntia basilaris var. treleasei)*

Status: Endangered (ESA); Endangered (CESA); CRPR 1B.1; BLM Sensitive

Distribution: The distribution of Bakersfield cactus has been described in a recent USFWS Recovery Plan (USFWS, 1998) as restricted to a limited area of central Kern County (County) near Bakersfield at elevations from approximately 460 to 1,800 feet. Previously, extensive colonies existed around Bakersfield, along the bluffs of the Kern River, along the Caliente Creek drainage and nearby in the foothills of the western Tehachapi Mountains, and south to the Tejon Hills. The current distribution of Bakersfield cactus in the Bakersfield area is fragmented and much reduced. Specimen records from the Consortium of California Herbaria include three specimens from the Mojave Desert near the community of Mojave. These specimens are from the 1930s, and the occurrences in this report and others from the greater Alta–Oak Creek Mojave (AOCM) Project area represent the most recent records of Bakersfield

cactus in the Mojave Desert proper (GANDA, 2011a). Approximately one-third of the historical occurrences of Bakersfield cactus have been extirpated and the remaining populations are highly fragmented (GANDA, 2011a).

Habit and Phenology: Bakersfield cactus is a perennial low-growing stem succulent in the cactus family (Cactaceae) that typically spreads to form extensive thickets. The stems are fleshy, flattened green pads up to 18 centimeters long by 1 to 1.5 centimeters thick. The flowers are magenta and usually appear in May.

Status in AEWP site: There is currently some disagreement about which morphological characteristics should be applied to identify the federal and State endangered Bakersfield cactus (*O. basilaris* var. *treleasei*), as opposed to the closely related variety, beavertail cactus (*O. b.* var. *basilaris*). Using identification characteristics offered recently by CDFG, the listed species is very common on the AEWP. Under this recently-issued guidance, plants possessing any one of the diagnostic characters (identified as a specific number and position of areoles, presence and length of spines on pads and ovary/fruits, leaf length, lack of downy hairs on pads and fruits, and specific chromosome number) are to be considered Bakersfield cactus under the CESA. However, using the keys and descriptions published in standard floras, there are few, if any, individuals of the listed species on site (see GANDA, 2011a for a detailed discussion).

A total of 112 individual specimens which meet the CDFG's criteria for Bakersfield cactus were mapped within the 917-acre AEWP survey area in 2011, and 363 Bakersfield cactus were mapped throughout the 1,424-acre project site in 2010 (Figure 3.17-3; GANDA 2010, 2011a). A total of 465 specimens are mapped within the current site boundaries. All of the *O. basilaris* plants classified under the 2011 CDFG guidelines (as described in GANDA, 2011a) as Bakersfield cactus were observed to occur in the hills in the northern portion of the AEWP area. This is consistent with previous observations of these plants on the greater AOCM Project site, where the frequency of individuals with characteristics of Bakersfield cactus is greater on hilly sites at higher elevations.

Fourteen cacti with characteristics consistent with the federal definition of the listed subspecies (see USFWS, 1990) were documented within the project area during rare plant surveys conducted in 2010 and 2011 (GANDA, 2010, 2011a).

Pale-yellow layia *(Layia heterotricha)*

Status: —/—; CRPR 1B.1; BLM Sensitive

Distribution: Fresno, Kings, Kern, Los Angeles, Monterey, Santa Barbara, San Benito, San Luis Obispo, and Ventura counties. The nearest previously known location to the AEWP area is in the Tomo-Kahni State Historic Park, seven miles north of the AEWP area (GANDA, 2011a).

Habit and Phenology: Pale-yellow layia is an annual herb in the sunflower family (Asteraceae) that occurs on alkaline or clay soils in cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grasslands; known occurrences range in elevation from 984 to 5,592 feet.

Status in AEWP site: Three individual pale-yellow layia plants at three separate locations were observed. One of the individuals was located about 60 feet outside of the survey boundary, while both of the other occurrences were within the AEWP boundary. The plants were found in non-native grasslands dominated by cheatgrass and red brome at two sites, and on barren soils at the third. At each location, the plants were associated with greenish-gray cracking clay soils (GANDA, 2011a).

Based on the lower than average seasonal rainfall totals in the vicinity of the AEWP, and observations of the low germination rates in other annual species in the area, it is likely that germination for pale-yellow layia was poor in 2011 and that larger populations occur in the area in favorable years. Areas of suitable clay soil for pale-yellow layia were mapped in the vicinity of the observed individuals (GANDA, 2011a).

Adobe yampah *(Perideridia pringlei)*

Status: —/—; CRPR 4.3

Distribution: Kern, Los Angeles, Monterey, Santa Barbara, San Luis Obispo, Tulare, and Ventura counties. Prior to surveys conducted for the AEWP, the closest record was about ten miles southwest of the AEWP area at Tomo-Kahni State Historical Park, northeast of Monolith and Tehachapi (GANDA, 2011a).

Habit and Phenology: Adobe yampah is a white-flowered perennial herb in the carrot family (Apiaceae). It reaches 13 to 36 inches in height, and has oblong fleshy tuberous roots, dissected, slightly fleshy basal leaves, and flowers clustered in compound umbels (GANDA, 2011a). Adobe yampah flowers from April to June. It grows in chaparral, cismontane woodland, coastal scrub, and pinyon and juniper woodland communities at elevations ranging from 985 to 5,900 feet (GANDA, 2011a).

Status in AEWP site: An estimated 30-40 adobe yampah were observed in the southwestern corner of the site during spring 2010 botanical surveys (Sycamore, 2010). Summer 2010 surveys documented a total of 23 plants at six sites within the project area (GANDA, 2010). Two individuals were detected in two (2) separate locations within the survey area during 2011 botanical surveys. Although both plants observed in 2011 were in early flowering condition, it is likely that other plants occur in the area but were not yet flowering, as the normal flowering period for this species in the area is in June (GANDA, 2011a).

3.17.2.4 Federal and State Jurisdictional Areas (Wetlands and Waters)

An evaluation of jurisdictional wetlands and other waters that are present at the AEWP site and offsite transmission line was conducted by CH2MHILL. This evaluation was based on a desk-top review of maps and other information, field delineation of jurisdictional features, and experience with other projects in the vicinity.

Survey Methodology

Field work for the jurisdictional delineation was conducted from April 25–30, 2011. Surveys delineated waters of the State potentially subject to CDFG and Regional Water Quality Control Board (RWQCB) jurisdiction that could be affected by construction and operation of the AEWP. Prior to conducting field surveys, aerial photographs, high-resolution topographic maps, and maps of United States Geological Survey National Hydrography Dataset (NHD) blue-line streams and National Wetlands Inventory (NWI) wetlands were used to determine potential locations of waters of the State. Surveys for linear facilities (i.e., turbine strings, collection lines, access roads) were conducted within a 400-foot buffer area surrounding the alignment (200 feet either side of the centerline); and surveys of proposed buildings and temporary construction areas were conducted within a 500-foot buffer area surrounding the footprint of the feature. In the field, transects were walked along linear features and 200 feet on either side of the centerline of these features. For AEWP structures and temporary construction areas, transects were walked perpendicular to the direction of stream flow. Spacing of transects was sufficient to document the presence of any stream or wetland features that might be present. Surveys of a proposed offsite transmission line were also conducted within a 400-foot buffer area surrounding the alignment (200 feet on either side of the centerline) (CH2MHILL, 2011l).

The RWQCB/CDFG jurisdictional boundaries were identified by measuring the stream widths at the tops of banks (TOB), maximum flood-prone area (if banks were not present), or the edges of the drip lines of riparian vegetation, if present. Channel depths were visually estimated at the thalweg (defined as the deepest part of the cross-sectional channel). Changes in vegetation, streambed, and soil characteristics were noted (CH2MHILL, 2011l).

Most of the streams surveyed were typical of arid ephemeral streams—they were relatively narrow with a single channel and well-defined banks that would contain higher volume flow. Some streams surveyed

were alluvial washes or fans. These systems often contained braided and/or multiple channels with islands that are most likely within the active floodplain or flood-prone area. In these systems, the TOB width captures those island/terraces that are part of the active floodplain contained within the braided channels. The active floodplain within these systems contained typical alluvial fan scrub vegetation that was also used to help identify the extent of the active floodplain or flood-prone area (CH2MHILL, 2011l).

The stream data was collected at each crossing and recorded using global positioning system (GPS) equipment with sub-meter accuracy. Wetlands were assumed to be present if hydrophytic vegetation and wetland hydrology were observed. Photographs were taken at each stream crossing point (CH2MHILL, 2011l).

Following field surveys, polygons were created in geographic information system (GIS) for all state jurisdictional stream features, utilizing stream width measurements in conjunction with aerial imagery. Intersections of AEWP features (such as access roads and collector lines) and jurisdictional waters were identified in GIS, and mapped as stream crossings (CH2MHILL, 2011l).

Determining Federal Jurisdiction (Federal Wetlands)

The project area was investigated to determine the presence or absence of wetlands and "waters of the U.S." afforded protection pursuant to Section 404 of the federal Clean Water Act (CWA). Based on the desktop review, field delineations, and other field evaluations, none of the water features observed on the project site would be subject to regulation under the federal CWA. Determinations have been issued recently by the United States Army Corps of Engineers (USACE) for nearby water features. An approved jurisdictional determination was received from the USACE Los Angeles District office (File No. SPL-2010-01014-BAH) concluding that waters within the Alta-Oak Creek Mojave and Alta Infill (Alta Wind I-VI and Alta Wind VIII) projects located in the Oak Creek watershed (including portions of Oak Creek) were not under USACE jurisdiction because they are isolated with no significant connection to a traditional navigable water. Any intermittent and ephemeral drainage or other water features on the AEWP site would also be considered isolated, with no significant connection to a traditional navigable water, and not regulated under the CWA (CH2MHILL, 2011l).

Determining State Jurisdiction

The project area was also investigated to identify and determine the presence or absence of areas potentially requiring a Streambed Alteration Agreement (SAA) with the CDFG in accordance with Sections 1600 through 1616 of the California State Fish and Game Code and a Waste Discharge Requirement pursuant to the Porter Cologne Act. Under these sections, a project proponent is required to notify CDFG prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake.

State jurisdictional ephemeral streams and desert washes were delineated within the survey area. Vegetation observed consisted primarily of upland species. No probable wetlands were delineated as hydrophytic vegetation was absent and no wetland hydrology was observed. In addition, no riparian vegetation was present along stream corridors. The total area of potential waters of the State delineated on site is 42 acres. The portion of Cache Creek on site is approximately 14 acres.

Based on the current AEWP design, AEWP features, such as access roads and collector lines, would intersect ephemeral streams in 99 locations, and would result in approximately five (5) acres of dredge/fill impacts (CH2MHILL, 2011l). Figures 3.17-4 and 3.17-5 in Appendix A show the locations of streams and wetlands on and near the AEWP site.

3.17.2 Applicable Regulations, Plans, and Standards

This section provides a discussion of federal, State, and regional environmental regulations, plans, and standards applicable to the AEWP for vegetation resources and state and federal jurisdictional areas.

3.17.2.1 Federal Regulations

National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs "a systematic, interdisciplinary approach" to planning and decision-making and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environmental and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the AEWP.

Federal Endangered Species Act (ESA)

The federal ESA and subsequent amendments designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species is prohibited by Section 9 of the ESA without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, are also prohibited.

ESA Section 7 and Section 10 provide two pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with USFWS. For example, the United States Army Corps of Engineers (USACE) must issue a permit for projects impacting non-wetland Waters of the United States (WUS) or wetlands under USACE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., USACE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 135 days to conduct formal consultation and respond to the BA by issuing its Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a "no jeopardy" opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest "reasonable and prudent measures" that would result in no jeopardy.

Under Section 10 of the ESA, private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an Incidental Take Permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, and discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not "appreciably reduce the likelihood of the survival and recovery of the species" it will issue an Incidental Take Permit. Issuance of an Incidental Take Permit requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on

private property are protected under the ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an Incidental Take Permit.

BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director that are not already federal listed proposed, or candidate species, or state listed because of potential endangerment. BLM's policy is to "ensure that actions authorized, funded, or carried out do not contribute to the need to list any of these species as threatened or endangered." Various offices of the BLM maintain a list of special status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

California Desert Conservation Area Plan

The CDCA Plan covers approximately 25 million acres of land in southern and southeastern California, with approximately 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the CDCA Plan, essentially zoning the CDCA into four major use categories, as a city or county is zoned for land use classes. The CDCA Plan categories include approximately four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; approximately four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; approximately 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and approximately 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 1999).

The Plan's goals and actions for each resource are established in its 12 elements including the Vegetation Element and the Energy Production and Utility Corridors Element, among several others (BLM, 1999). There have been amendments to the 1980 Plan, including the West Mojave Plan (WEMO). The AEWP falls within the planning boundaries of the WEMO, which is described below.

West Mojave Plan (WEMO)

The WEMO is a Habitat Conservation Plan (HCP) pursuant to the federal ESA and an approved amendment to the CDCA Plan covering over 9 million acres in five counties with the purpose of creating a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel, and nearly 100 other sensitive species, as well as the natural communities in which they reside. The 9,359,070-acre planning area includes 3,263,874 acres of BLM-administered public lands; 3,029,230 acres of private lands; and 102,168 acres of lands administered by the State of California within portions of Inyo, Kern, Los Angeles, and San Bernardino counties.

In March 2006 the BLM issued a Record of Decision (ROD) for the WEMO Final Environmental Impact Statement (BLM, 2006). However, the ROD addressed only the BLM's amendment to the CDCA Plan, and it did not include actions proposed by State and local governments for non-federal lands. The HCP has not been completed and would require greater specificity for local governments to obtain incidental take permits under the State and federal ESAs.

The WEMO area in the County begins at the intersection of Kern, Inyo, and San Bernardino Counties northeast of Ridgecrest, California. The area follows the Sierra Nevada Mountain Range to the southwest and continues to the Tehachapi Mountains and then to the Los Angeles County line east-northeast of Quail Lake. The AEWP falls within the boundaries of the WEMO; however, private lands within the project area are currently not subject to the WEMO as it has not yet been adopted for lands not administered by the BLM. However, BLM lands within the project area are subject to the provisions of the WEMO as an amendment to the CDCA Plan.

Federal Clean Water Act (CWA) (33 U.S.C. 1251 through 1376)

The CWA (33 U.S.C. 1251 et seq.) is intended to restore and maintain the quality and biological integrity of the nation's waters. It prohibits the discharge of pollutants into waters of the United States (WUS) without a National Pollutant Discharge Elimination System (NPDES) permit from the Environmental Protection Agency (EPA). By issuing NPDES permits, the EPA can regulate the discharge of pollutants to protect water quality.

Section 401 requires that a project proponent for a Federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a State certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.

Section 404 of the CWA provides that whenever any person discharges dredged or fill material into waters of the U.S. (e.g., streams, wetlands, lakes, bays) a permit is required from the USACE. The USACE has issued 50 separate Nationwide Permits (NWPs) for different types of projects with impacts to wetlands (as of March 19, 2007). Depending on the level of impact, projects qualifying for an NWP may be required to provide the USACE with Pre-Construction Notification of the impacts and meet other restrictions. Projects with greater wetland impacts than those allowed under one of the NWPs require an Individual Permit. The process of obtaining an individual permit includes public notice and response to all comments received; the permit decision document includes a discussion of the environmental impacts of the project, the permit addresses public and private needs, alternatives to achieve project purposes if needed, and beneficial and/or detrimental effects of the project on public and private uses. In *SWANCC vs. ACOE*, the Supreme Court ruled that the jurisdiction of the USACE does not extend to isolated, intrastate, non-navigable waters and wetlands, such as vernal pools, ephemeral streams, and wetlands not associated with a stream channel. The USACE also authorizes activities that involve structures or work in or affecting navigable WUS under Section 10 of the Rivers and Harbors Act of 1899.

USACE issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained. In California, the RWQCBs issue this certification.

Executive Order 13112 – Invasive Species

Executive Order 13112 was signed in February 1999 and established the National Invasive Species Council. This Order requires agencies to prevent the introduction of invasive species; to provide for their control; and to minimize the economic, ecological, and human health impacts that invasive species cause to the extent practicable and permitted by law.

Federal Noxious Weed Act of 1974, as amended

This Act established a federal program to control the spread of noxious weeds. The Secretary of Agriculture is authorized to designate plants as noxious weeds. The movement of all such weeds in interstate or foreign commerce is prohibited except under permit.

Lacey Act, as amended (16 USC 3371-3378)

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

Executive Order 1199 – Protection of Wetlands

This order establishes a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative.

Executive Order 13212 – Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use

Approved on May 18, 2001, Executive Order 13212 directs federal agencies involved in reviewing energy-related projects to streamline their internal approval processes and establish an interagency task force to coordinate federal efforts at expediting approval mechanisms. The interagency task force will be established to monitor and assist the agencies in the efforts to expedite their review of permits or similar actions, as necessary, to accelerate the completion of energy-related projects, increase energy production and conservation, and improve transmission of energy. This task force also shall monitor and assist agencies in setting up appropriate mechanisms to coordinate federal, State, tribal, and local permitting in geographic areas where increased permitting activity is expected.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. 661 666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project Proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

3.17.2.2 State Law and Regulations

California Environmental Quality Act

The CEQA was adopted in 1970 and applies to actions directly undertaken, financed, or permitted by State lead agencies. CEQA requires that agencies inform themselves about the environmental effects of their proposed actions, consider all relevant information, provide the public an opportunity to comment on the environmental issues, and avoid or reduce potential environmental harm whenever feasible. CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. Regulations for implementation are found in the State CEQA Guidelines published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

California Endangered Species Act

The California ESA establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Unlike the federal ESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to the federal ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by a Project Proponent from CDFG under California ESA Sections 2091 and 2081. Section 2091, like the federal ESA Section 7, provides for consultation between a state lead agency under the CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Pursuant to Section 2081 of the California State Fish and Game Code, the CDFG may

authorize individuals or public agencies to import, export, take, or possess, and State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or a Memorandum of Understanding (MOU) if: (1) the take is incidental to an otherwise lawful activity, (2) impacts of the authorized take are minimized and fully mitigated, (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) the Project Proponent ensures adequate funding to implement the measures required by the CDFG. The CDFG makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Under Sections 3503 and 3503.5 of the California State Fish and Game Code, Project Proponents are not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey, taking or possessing of any migratory non-game bird as designated in the MBTA or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to California State Fish and Game Code Section 3800.

California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) of 1977 directed the CDFG to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. The California Endangered Species Act of 1984 expanded on the original NPPA and enhanced legal protection for plants, but the NPPA remains part of the Fish and Game Code. To align with federal regulations, California ESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in California ESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFG and the Project Proponent.

California Desert Native Plants Act

The CDNPA protects California desert native plants from unlawful harvesting on both public and privately owned lands within Imperial, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego Counties. The following native plants, or any part thereof, may not be harvested except under a permit issued by the commissioner or the sheriff of the county in which the native plants are growing: all species of the Agavaceae (century plants, nolinas [now Ruscaceae], and yuccas); all species of the family Cactaceae; all species of the family Fouquieriaceae (ocotillo); all species of the genus *Prosopis* (mesquites) and the genus *Parkinsonia* (palo verdes); catclaw acacia (*Acacia greggii*); desert holly (*Atriplex hymenelytra*); smoke tree (*Psorothamnus spinosus*); and desert ironwood (*Olneya tesota*), both dead and alive (provision 80073). This provision excludes any plant that is declared to be a rare, endangered, or threatened species by federal or State law or regulations, including, but not limited to, the California State

Fish and Game Code. The fee for the permit to remove any of these plants will not be less than $1 per plant, except for Joshua trees (*Yucca brevifolia*), which will not be less than $2 per plant.

The CDNPA was taken into consideration in this evaluation due to the presence of Joshua trees and other covered species on the project area and to provide guidance to the Project Proponent with regard to the removal and potential harvesting of these species in support of the AEWP.

Porter-Cologne Act

The intent of the Porter-Cologne Act is to protect water quality and the beneficial uses of water, and applies to both surface and groundwater. Under this law, the California State Water Resources Control Board develops statewide water quality plans, and the RWQCBs develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under Porter-Cologne include isolated waters that are no longer regulated by USACE. Developments which impact jurisdictional waters must demonstrate compliance with the goals of the Act by developing Storm Water Pollution Prevention Plans, Standard Urban Storm Water Mitigation Plans, and other measures in order to obtain a CWA Section 401 certification.

Lake and Streambed Alteration Program

Under Sections 1600 through 1616 of the California State Fish and Game Code, a Project Proponent is required to notify CDFG prior to commencement of any activity that would substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank (which may include associated riparian resources) of a river, stream or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. Pursuant to the California State Fish and Game Code, a “stream” is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFG jurisdiction. Altered or artificial drainages valuable to fish and wildlife are also subject to CDFG jurisdiction. The CDFG also has jurisdiction over dry washes that carry water ephemerally during storm events.

Preliminary notification and project review generally occur during the environmental process. A Project Proponent submits a complete Lake or Streambed Alteration Program notification package and fee to the CDFG. The CDFG has 30 days to review the proposed actions and propose measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFG and the Project Proponent becomes the Lake or Streambed Alteration Agreement (LSAA). The conditions of agreement and a CWA Section 404 permit often overlap.

3.17.2.3 Regional and Local Plans, Policies, and Regulations

The AEWP boundaries are located predominately within the Kern County General Plan with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to biological resources.

Kern County General Plan

The Kern County General Plan (KCGP) identifies the federal, State, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County (County) during the decision-making process for any project that could impact biological resources.

Land Use, Open Space, and Conservation Element. The Land Use, Open Space, and Conservation Element of the KCGP states that the element provides for a variety of land uses for future economic growth while also assuring the conservation of County’s agricultural, natural, and resource attributes.

Section 1.10, General Provisions, provides goals, policies, and implementation measures that apply to all types of discretionary projects.

Section 1.10.5 – Threatened and Endangered Species

Policies

- **Policy 27.** Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.
- **Policy 28.** County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.
- **Policy 29.** The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.
- **Policy 30.** The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, State, and federal programs concerning endangered species conservation issues.
- **Policy 31.** Under the provisions of CEQA, the County, as lead agency, will solicit comments from CDFG and USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.
- **Policy 32.** Riparian areas will be managed in accordance with USACE, and the CDFG rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

- **Implementation Measure Q.** Discretionary projects shall consider effects to biological resources as required by CEQA.
- **Implementation Measure R.** Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.
- **Implementation Measure S.** Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Section 1.10.10 – Oak Tree Conservation

Policies

- **Policy 65.** Oak woodlands and large oak trees shall be protected where possible and incorporated into project developments.
- **Policy 66.** Promote the conservation of oak tree woodlands for their environmental value and scenic beauty.

Implementation Measures

- **Implementation Measure KK.** The following applies to discretionary development projects (General Plan Amendment, zone change, conditional use permit, tract maps, parcel maps, precise development plan) that contains oak woodlands, which are defined as development parcels having canopy cover by oak trees of at least 10 percent (10%), as determined from base line aerial photography or by site survey performed by a licensed or certified arborist or

botanist. If this study is used in an Environmental Impact Report, then a Registered Professional Forester (RPF) shall perform the necessary analysis.

a. Development parcels containing oak woodlands are subject to a minimum canopy coverage retention standard of thirty percent (30%). The consultant shall include recommendations regarding thinning and diseased tree removal in conjunction with the discretionary project.

b. Use of aerial photography and a dot grid system shall be considered adequate in determining the required canopy coverage standard.

c. Adjustments below thirty percent (30%) minimum canopy standard may be made based on a report to assess the management of oak woodlands.

d. Discretionary development, within areas designated as meeting the minimum canopy standard, shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

- **Implementation Measure LL.** The following applies to development of parcels having oak tree canopy cover of less than 10 percent (10%), but containing individual oak trees equal to or greater than a 12-inch diameter trunk at 4.5 feet breast height.

a. Such trees shall be identified on plot plans.

b. Discretionary development shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

c. Specified tree removal related to the discretionary action may be granted by the decision making body upon showing that a hardship exists based on substantial evidence in the record

Chapter 5 Energy Element – 5.2 Importance of Energy to Kern County

Policies

- **Policy 8.** The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.
- **Policy 9.** The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

Mojave Specific Plan

A portion of the eastern project area lies within the Mojave Specific Plan (MSP) boundaries. The MSP includes the following goals, objectives, policies, and implementation measures related to biological resources:

Land Use Element

Goals

- Improve and maintain distribution and compatibility of land uses.

Objectives and Policies

- **Objective 3.2.** Develop a balanced land use pattern to ensure that future growth provides a range of residential, employment, service, and recreational opportunities.

- Policy 3.2.2: Preserve areas with natural constraints and important natural or unique features for open space.

Conservation Element

Goals

- Promote conservation of vegetation and wildlife.

Objectives and Policies

- **Objective 4.4.** Maintain and promote the retention of natural settings and use of native or adaptable vegetation.
- Policy 4.4.1: Utilize the Resource Reserve (8.2) and Resource Management (8.5) Map Codes (as defined in Table 3-2), as well as the Cluster (CL) Combining District, to reduce the impacts of development on important ecological and biological resources.
- Policy 4.4.2: Develop active open space uses in an ecologically sensitive manner.
- Policy 4.4.3: For development projects that are located outside the identified urbanized non-sensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources, a biological survey shall be conducted. Alternatively, a project applicant may demonstrate urbanized, non-sensitive status through the identification of applicable studies.
- Policy 4.4.4: Encourage the preservation of Joshua trees, Joshua tree woodlands, known wildflower displays, or other biologically sensitive flora determined during biological surveys.

Open Space Element

Goals

- Ensure compatibility between development and large areas of Resource Management designated land.

Objectives and Policies

- **Objective 5.2.** Ensure that development expands without adversely impacting significant natural resources on lands within the Resource Management designation.
- Policy 5.2.5. To conserve open space, the Resource Management, Resource Reserve, and Mineral and Petroleum designations will continue to apply to outlying areas where infrastructure and public services are not provided or where significant biological or mineral resources exist.

Implementation Measures

Minimizing Land Use Conflicts

- **Implementation Measure C-6: Biological Resources.** Implement the following measures to preserve biological resources in developing portions of the Specific Plan Area:

  a) Require a biological survey to be conducted in non-urbanized sensitive areas (not developed, not previously developed, or not previously mitigated) with potentially significant biological resources.

  b) For development projects that are located outside the identified urbanized non-sensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources, a biological survey shall be conducted. A qualified biologist shall be consulted to conduct protocol surveys and evaluations of rare, threatened, or endangered species. Sensitive species

may also be considered during surveys. If rare, threatened, or endangered species are found during the surveys, the biologist will consult with the California Department of Fish and Game, the U.S. Fish and Wildlife Service, or other agencies and jurisdictions with authority to implement and enforce requirements of the California or U.S. Endangered Species Acts, prior to ground disturbance. Determination of significant impact from the biologist shall include recommendations of mitigation measures to preserve or protect habitat and to otherwise ensure protection of identified species. Copies of all surveys, evaluations, and biological reports, issued as a result of said consultation shall be submitted to the Planning Department.

c) All development within the area identified as the urbanized non-sensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources shall have the following measures applied to discretionary approvals and implementation of the plan and amendments to the plan, zone changes, conditional use permits and land divisions.

1. Unleashed dogs shall not be allowed on the project site during construction.
2. All trash is to be contained on site in covered containers. The work site is to be cleared daily of garbage and debris related to food.
3. Vegetation should not be removed ahead of issuance of a grading permit or development.
4. When appropriate, on-site vegetation, including Joshua trees, should be incorporated into project design rather than removed.
5. Construction personnel shall receive education on proper protocol, as formulated by the U.S. Fish and Wildlife Service, if a desert tortoise is discovered on site.

Related Policies: 4.4.2, 4.4.3, 4.4.4, 4.4.5

- **Implementation Measure C-7: West Mojave Habitat Conservation Plan.** If the West Mojave Habitat Conservation Plan is adopted by the Kern County Board of Supervisors, compliance with that Plan will constitute mitigation of potentially significant biological resources.

Related Policies: 4.4.4, 4.4.5

Zoning Ordinance of Kern County (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to biological resources issues related to the AEWP.

- **Section 19.64.120(A):** No landscaping required in connection with wind-driven electrical generators.
- **Section 19.64.140(B):** Towers and blades shall be painted a non-reflective, unobtrusive color or have a non-reflective surface.
- **Section 19.64.140(C):** Fencing shall be erected for each wind machine or on the perimeter of the total project. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed of four (4) strand barbed wire or materials of a higher quality. Fencing erected on the perimeter of the total project shall include minimum 18- by 18- inch signs warning of wind turbine dangers. Such signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress. Where perimeter fencing is

utilized, the Planning Director may waive this requirement for any portion of the site where unauthorized access is precluded due to topographic conditions.

- **Section 19.64.140(D):** All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting "tie-ins" to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of this provision, engineered aboveground electrical power lines shall be allowed.
- **Section 19.64.140(H):** All wind projects including wind generators and towers shall comply with all applicable County, State, and federal laws, ordinances, or regulations.
- **Section 19.64.140(K):** Prior to the issuance of any grading permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared by a registered civil engineer or other professional and submitted for the approval by the Director of the Engineering, Surveying, and Permit Services Department. The plan shall include provisions for site revegetation, including any necessary re-soiling, proposed plant species, proposed plant density and percentage of ground coverage, and the methods and rates of application and shall include sediment collection facilities as may be required by the Engineering, Surveying, and Permit Services Department.

  The soil erosion and sedimentation control plan shall be consistent with the applicable requirements of the California Regional Water Quality Control Board pertaining to the preparation and approval of Storm Water Pollution Prevention Plans. Notwithstanding the foregoing, the revegetation portion of the soil erosion and sedimentation plan shall be prepared by a professional biologist or other professional approved, in advance, by the Engineering, Surveying, and Permit Services Department.

  The plan shall include a timetable for full implementation, estimated costs, and a surety bond or other security as approved by the Engineering, Surveying, and Permit Services Department in an amount determined by that department to guarantee plan implementation. The soil erosion and sedimentation control plan, including the revegetation plan and security instrument, shall be submitted to, and approved by, the Floodplain Management Section of the Engineering, Surveying, and Permit Services Department prior to the issuance of any grading permit. The security shall remain on file with the Engineering, Surveying, and Permit Services Department until that department has verified that the plan has been successfully implemented.
- **Section 19.64.140(L):** A minimum of on-site roadways shall be constructed. Temporary access roads utilized for initial machine installation shall be revegetated to a natural condition after completion of machine installation. The Project Proponent shall submit a plan of all proposed roads, temporary and permanent, for approval by the Planning Director prior to the issuance of any building permits.
- **Section 19.64.140(M):** Construction of any slopes steeper than four to one (4:1) shall be prohibited unless specifically authorized by the Kern County Planning Department and mitigation is provided.
- **Section 19.64.140(N):** Wind project facilities shall be encircled with a 10-foot-wide fuel break. Subject fuel breaks may be installed for each wind machine or the perimeter of the total project, but in no event shall encompass more than forty (40) acres per block. Permanent access roads may also be considered fuel breaks. This requirement may be modified at the discretion of the Kern County Fire Chief.

3.18 Visual Resources

Visual Resources, as referred to in National Environmental Policy Act (NEPA), refers to the components of the environment as perceived through the visual sense only. Aesthetics, as referred to in the California Environmental Quality Act (CEQA), refers to visual considerations in the physical environment. Because a person's reaction and attachment to a given viewshed are subjective, visual changes inherently affect viewers differently. Accordingly, visual resource and aesthetics analysis is a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The Visual Resources section of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) describes the existing landscape character of the Alta East Wind Project (AEWP) area, existing views of the area from various on-the-ground vantage points, the visual characteristics of the AEWP, and the landscape changes that would be associated with the construction and operation of the AEWP, as seen from various vantage points. The analysis in this section utilizes, in part, the *Alta East Wind Project Supplemental VRM Analysis*, prepared by CH2MHill (CH2MHill, 2012). The complete text of this *Supplemental VRM Analysis* is provided as Appendix E.

3.18.1 Environmental Setting

3.18.1.1 Regional Setting

The AEWP is located in eastern Kern County in the northern Antelope Valley, a broad level valley in the westernmost portion of the Mojave Desert at its boundary with the foothills of the Tehachapi Mountains. The AEWP site occupies a portion of those foothills, called the Horned Toad Hills, and forms a part of the larger Tehachapi Wind Resource Area (TRWA).

3.18.1.2 Approach to Baseline Analysis

Because portions of the proposed AEWP occupy federal lands administered by the BLM, this visual analysis is based on the BLM Visual Resource Management (VRM) System (USDI, 2011). In addition, because the VRM method provides an accepted system of visual analysis applicable to non-BLM lands as well, the VRM method is applied in this study to the entire AEWP, including portions of the AEWP outside of BLM jurisdiction, for the sake of consistency. The VRM system is broadly consistent with the requirements of both NEPA and CEQA for purposes of environmental review.

Under the VRM system, the affected setting is evaluated in terms of its scenic quality, the sensitivity of viewers in the setting to visual change, and distance of viewers to areas within the setting. The study area is delineated into areas based on these criteria, and the evaluation is then expressed in terms of four visual resource inventory (VRI) classes assigned to those areas. The assigned visual inventory classes represent objectives for allowable project contrast in each area as follows:

- Class I: (Special designation scenic management areas) No contrast allowable.
- Class II: Weak contrast. Project contrast can be seen but does not attract attention
- Class III: Moderate contrast. Project contrast begins to attract attention and begins to dominate the characteristic landscape
- Class IV: Strong contrast. Project contrast can demand attention, will not be overlooked, is dominant in the landscape

Under BLM Handbook H-8400 guidelines, VRI classes are assigned according to the following table, showing possible levels of visual sensitivity, scenic quality, and distance zone:

Table 3.18-1. Determining Visual Resource Inventory Classes

		Visual Sensitivity Levels						
		High			Medium			Low
Special Areas		I	I	I	I	I	I	I
Scenic Quality	**A**	II	II	II	II	II	II	II
	B	III	III	III	IV	IV	IV	IV
	C	IV	IV	IV	IV	IV	IV	IV
		F/m	**b**	**S/s**	**F/m**	**b**	**S/s**	**S/s**
		Distance Zones						

Notes: f/m = foreground/middleground (3 –5 miles)
B = background (5 – 15 miles)
S/s = seldom seen (beyond 15 miles)
Source: BLM Handbook H—8410-1

Because the California Desert District was not previously assigned VRM classes in the BLM's California Desert Conservation Area Plan (CDCA Plan), Interim VRM Classes are required to establish the resource baseline in accordance with the BLM Handbook. VRI classes were developed for the AEWP based on VRM guidance in BLM Handbook, section H-8410 as described above. The development of these VRI classes is described in the *Alta East Wind Project Supplemental Visual Resource Management (VRM) Analysis* prepared by CH2MHill, 2012 and this study appears in Appendix E of this Draft EIS/EIR.

The VRI classes of the VRM analysis were then used by BLM to define Interim VRM (IVRM) Classes for the AEWP area. IVRM classes represent the applicable visual management objectives for affected BLM lands in the AEWP study area. IVRM Classes reflect the VRI analysis in the context of land use allocations in the Resource Management Plan (CDCA Plan), and other applicable agency and district resource management objectives. In this case IVRM Class IV objectives were adopted for the entire AEWP area after a detailed review of site constraints and consideration of agency land management priorities in areas, such as the AEWP site, identified as having high wind energy potential (BLM, 2009).

3.18.1.3 Viewshed and Key Observation Points

Due to the level topography in the Antelope Valley floor, viewsheds of wind turbines located atop adjacent ridges in the Tehachapi Mountain foothills tend to extend over a large area. A more relevant consideration in evaluating project viewsheds is the location, number and sensitivity of potential viewers to the project. Concentrations of viewers with exposure to the AEWP would include motorists on Highway 58; a small number of residences and commercial uses north of Highway 58 near KOP 2; hikers on the Pacific Crest Trail (PCT); and a very small number of rural residences to the south of the AEWP.

The location of Key Observation Points (KOPs) discussed below are depicted in Figure 3.18-1.

Key Observation Points (KOPs)

Note: The KOPs listed below are the same for all Alternatives in this analysis. Two KOPs in the VRM analysis, KOPs 4 and 6, are omitted from this discussion because the same areas and issues of the AEWP are adequately addressed from the included KOPs.

As described in Section 3.4 (Cultural Resources) and Section 5 (Consultation, Coordination, and Public Involvement), BLM will consult with Indian Tribal governments to identify issues regarding the AEWP, including issues related to the presence of cultural properties, access rights, disruption to traditional cultural practices, and impacts to visual resources important to the Tribe(s).

Key Observation Point 1 (KOP 1) – View Looking East from Pacific Crest National Scenic Trail

KOP 1 is taken from the PCT at a distance of 1.2 miles from the nearest proposed turbine of the AEWP. The KOP is taken from a worst-case elevated point on the scenic trail overlooking the AEWP site and proposed turbines, representative of a short segment of the trail nearest the AEWP site. The KOP presents a good overview of the AEWP site, although visibility of the AEWP would be less on other portions of the PCT due to greater distance and intervening terrain. The turbines visible in the view from this KOP would be located within BLM lands, and are assigned IVRM Class IV. Highway 58 and portions of the Community of Mojave are visible in the pass and valley floor in the distance. The KOP, also located on BLM-administered land, was not inventoried or classified in the visual study leading to AEWP IVRM classifications, but has a higher level of scenic quality and visual sensitivity than the visible portions of the AEWP site. However, under BLM VRM practice, the relevant visual management objective is typically that of the site being viewed, rather than that of the viewpoint. The applicable Scenic Quality class from this KOP is B.

Key Observation Point 2 (KOP 2) – View looking northwest from within rural-residential county lands north of Highway 58 in Tehachapi Pass.

KOP 2 represents the view from a small rural residential settlement located north of Highway 58 at the eastern entrance to Tehachapi Pass. Viewing distance to the nearest proposed turbines would range from very near foreground distance (under 0.25 mile) to over one mile. The KOP is not within BLM land, but is within the same area as the adjacent portions of the site, delineated as the Tehachapi Pass landscape unit and assigned IVRM Class IV. The adjacent Tehachapi Mountain slopes and ridges form a generally scenic and intact natural backdrop in views to the west, although scars of a nearby quarry are also visible at foreground distance on slopes to the northwest. Other existing man-made visual intrusions in the Tehachapi Pass viewshed include roadway lanes and large road cuts of Highway 58, engineered embankments of the UPRR railroad line, roadside commercial development, and existing wind development. The applicable Scenic Quality class from KOP 2 is B.

Key Observation Point 3 (KOP 3) – View looking southeast from within rural-residential county lands north of Highway 58 in Tehachapi Pass.

KOP 3 is a view from the same rural settlement as KOP 2, looking into the pass over Highway 58, toward portions of the AEWP site to the south of the highway. The view is representative of views within the highway corridor in this portion of the pass generally. Viewing distance to the nearest proposed turbines would be as little as 0.5 mile. The KOP is not within BLM land, but is within the same area as the adjacent BLM portions of the AEWP site, delineated as the Tehachapi Pass landscape unit and assigned IVRM Class IV. Although located within the same landscape unit as KOP 2, views into the highway corridor such as this look upon a compromised landscape dominated by the highway, large road cuts, the existing railroad line and embankments, billboards and other development within the settlement. The applicable Scenic Quality class within this view is C.

Key Observation Point 5 (KOP 5) – View looking northwest from Highway 14/Highway 58 interchange

KOP 5 is located at the Highway 14/Highway 58 interchange at a distance of 3 miles or more from the nearest proposed turbines, at portions of the AEWP site located on BLM lands in the Horned Toad Hills. Portions of the AEWP site in this view are located within the Tehachapi Pass landscape unit, assigned IVRM Class IV; others are within the Tehachapi Foothills unit, also assigned IVRM Class IV. Extensive existing wind development is visible in the left (westernmost) portions of the view, extending to the ridge tops where turbines break the skyline of the ridge top. The existing wind development compromises the quality of views in this western quadrant of the landscape. Due particularly to that intrusion of existing wind development, the applicable Scenic Quality class within this view is C. The view is representative

of northwest-bound motorists looking west toward the foothills and Tehachapi Pass at middle-ground distance.

Key Observation Point 7 (KOP 7) – View looking north from Oak Creek Road/Highway 58 Overpass in Mojave

KOP 7 is taken from the elevated Oak Creek Road overpass west of the Community of Mojave at a distance of three miles or greater from the AEWP site. The KOP is representative of views from the Community of Mojave, and provides an overview of both the existing and proposed landscape as seen in views toward the AEWP site. Extensive wind development of the TWRA is visible in the foothills and valley, lending an industrial character to the view. Portions of the AEWP visible within the view are predominantly within the Tehachapi Foothill landscape unit, with the nearest portions of the site within BLM lands in the Antelope Valley Desert Floor landscape unit. All areas are assigned IVRM Class IV. . Due particularly to intrusion of existing wind development in these views, the applicable Scenic Quality class is C.

3.18.2 Applicable Regulations, Plans, and Standards

3.18.2.1 Federal

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The CDCA Plan is the BLM's land use plan applicable to the AEWP. Visual impacts of projects within BLM lands are evaluated under the Visual Resource Management (VRM) method as described in BLM Handbook 8400 et seq. The CDCA Plan however did not include VRM baseline mapping or delineation of Visual Resource Management Classes. Under these circumstances BLM requires that interim VRM (IVRM) Classes be assigned and adopted to evaluate project visual conformance with the CDCA Plan as described above. The affected BLM lands are designated Multiple-Use Class L (Limited Use) in the CDCA Plan.

Federal Aviation Administration (FAA)

The Federal Aviation Administration (FAA) regulates airspace and flyways for air travel. The FAA requires preparation of a Notice of Proposed Construction or Alteration (Form 7460-1) describing the project design and addressing compliance with FAA procedures. The notice must also include the final locations of structures, structure types, and structure heights. The FAA may then conduct its own study of the project and make recommendations to the proponent regarding possible airway marking, lighting, and other safety requirements (FAA 2005).

The FAA regulates regional airspace jurisdiction for the Edwards Air Force Base, which is located 25.5 miles southeast of the easterly boundary of the AEWP site, and China Lake Naval Weapons Center, which is 60 miles northeast of the property. Therefore, AEWP compliance with FAA regulations was considered in this analysis (FAA 2010).

3.18.2.2 State

California Scenic Highways Program

The California Scenic Highway Program preserves and protects scenic highway corridors from changes that would diminish their aesthetic value. The California Department of Transportation (Caltrans) designates scenic highway corridors and establishes those highways that are eligible for the program. The program was created in 1963 with the enactment of the State Scenic Highways Law. The street and highway code includes a list of those highways that are either eligible for designation or are designated (California Scenic Highway Mapping System 2010).

The AEWP site is not within the viewshed of any Designated State Scenic Highway. The nearest Officially Designated State Scenic Highway to the AEWP site is SR-2, the Angeles Crest Highway, more than 45 miles to the southeast of the AEWP site in Los Angeles County. The Scenic Highway Program identifies SR-14 north of Mojave and SR-58, east of their intersection 3 miles east of the AEWP site, as Eligible State Scenic Highways, which is distinct from an official scenic designation. However, the highways are not designated and have not been nominated. Therefore, AEWP compliance with the California Scenic Highway Program was not considered in this analysis. Worst-case views from eligible portions of both SR-14 and SR-58 would be essentially similar to the view represented in KOP 5 of this analysis, as presented in Section 4.18.

3.18.2.3 Local

Kern County General Plan (KCGP)

The AEWP boundaries are located predominately within the KCGP with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Mojave Specific Plan and the Cache Creek Interim Rural Community Plan do not contain policies specific to visual resources. Therefore, the AEWP would be subject to the policies and measures of the KCGP as listed below.

Chapter 1. Land Use, Open Space, and Conservation Element

- **Policy 47**. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.
- **Policy 48**. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.
- **Implementation Measure AA.** The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

County Zoning Ordinance (Title 19), Chapter 19.64: Wind Energy (WE) Combining District

The WE Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to aesthetics and visual resources issues related to the AEWP.

- **B.** Towers and blades shall be painted a nonreflective, unobtrusive color or have a non-reflective surface.
- **D.** All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting therefrom “tie-ins” to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of this provision, engineered aboveground electrical power lines shall be allowed.
- **G.** Wind generator machine and associated meteorological tower overall height shall not exceed six hundred (600) feet and is subject to Section 19.08.160.B. For the purposes of this chapter, machine height shall be measured as follows:
    1. Overall machine height of horizontal axis machines shall be measured from grade to the top of the structure, including the uppermost extension of any blades.
    2. Machine height of vertical axis or other machine designs shall be measured from grade to the highest point of the structure.

- **I.** One (1) project identification sign, located at each point of project ingress and egress, not to exceed thirty-two (32) square feet in area, may be erected on the project site. No other signs shall be installed other than safety signs and the required warning signs. The developer shall submit a sign elevation drawing to the Planning Director for review and approval prior to installation.

3.19 Water Resources

This section addresses potential impacts of the project on water resources, including hydrology and water quality and also describes the environmental and regulatory setting.

Data collection was conducted through review of the following resources: aerial photographs; information from the Lahontan Regional Water Quality Control Board (RWQCB) and the State Water Resources Control Board (SWRCB); groundwater basin data from Bulletin 118 – Update 2004 published by the Department of Water Resources (DWR); flood hazard data from the Federal Emergency Management Agency (FEMA); and field reconnaissance data.

Additionally, the analysis in this section utilizes, in part, the *Technical Memorandum: Jurisdictional Wetlands and Other Waters – Alta East Wind Energy Project* and the *Alta East Wind Project Water Supply Assessment Technical Memorandum*, prepared by CH2MHill (CH2MHill, 2011l and 2011d). The complete text of this Water Supply Assessment is provided as Appendix I of this Draft Plan Amendment, Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

3.19.1 Environmental Setting

The proposed AEWP site is located in the northwestern-most portion of the Antelope Valley. The AEWP area straddles the desert floor and the adjacent foothills of the Tehachapi Mountains, a short transverse range that connects the southernmost Sierra Nevada Mountains (to the northeast) with the San Emigdio Mountains (to the southwest). The topography of the proposed AEWP area is comprised of foothills and desert floor, with elevations ranging between 3,000 and 3,400 feet above mean sea level (msl).

Climate for the AEWP area is influenced by both the Mojave Desert and the Tehachapi Mountains. This transition zone experiences higher annual precipitation and lower annual high temperatures than a majority of the Antelope Hydrologic Unit (HU), which is comprised mainly of desert floor. In the unincorporated community of Mojave, located approximately three miles southeast of the AEWP site, the average rainfall is 5.93 inches, predominantly during the fall and winter months with a standard deviation of 3.79 inches. The high for precipitation is 15.51 inches and the low is 0.85 inches (WRCC, 2012a). In addition, there are an average of 45 days below freezing and 98 days above 90 degrees (WRCC, 2012b).

3.19.1.1 Surface Water

As shown in Figure 3.19-1 (Surface Water Resources) in Appendix A, the AEWP site is located within the Antelope HU of the South Lahontan Hydrologic Region (HR) to the south and the Fremont HU to the north. The southwestern portion of the Fremont HU, where the AEWP lies, generally receives surface water runoff from Whiterock Creek, Cache Creek, and numerous intermittent/ephemeral drainages, such as those that cross the AEWP area (discussed below in Section 3.19.1.1). The northwestern portion of the Antelope HU, where the majority of the project area is located, receives surface water runoff from streams originating in the Tehachapi Mountains, including Oak Creek and Cottonwood Creek. During extreme rain events, multiple intermittent or ephemeral waterways in the area convey surface water runoff to Rosamond Dry Lake, located northeast of Lancaster. The Antelope HU drains a total of 3,387 square miles. About 80 percent of the watershed is characterized by a low to moderate slope (0 to 7 percent), while the remaining 20 percent consists of foothills and rugged mountains, some of which reach over 7,000 feet in elevation. The Antelope HU generally lacks defined natural channels outside of the foothills and is therefore subject to unpredictable sheet flow patterns during precipitation events that are large enough to produce runoff. (CH2MHILL, 2011l; SDLAC, 2005)

Surface water features within the AEWP area are comprised of intermittent streams, ephemeral waterways, desert washes, and FEMA-designated Flood Hazard Areas, described below. As shown in Figure 3.19-1 (Surface Water Resources), there are multiple “blue-line” stream channels which drain the project area, as defined by the National Hydrography Dataset. Stream channels in this area typically appear as washes on

the desert floor; in the foothills of the Tehachapi Mountains, stream channels are better defined. Through the majority of the AEWP site, drainages are oriented in east-west alignments, while drainages in the southwestern portion of the site are aligned southeast-northwest. Cache Creek runs in an east-west direction adjacent to the north of the AEWP site.

During field work conducted in support of jurisdictional delineations for the AEWP site, most of the streams surveyed were typical of arid ephemeral streams; they were relatively narrow with a single channel and well-defined banks that would contain higher volume flow. Some streams surveyed were alluvial washes or fans. These systems often contained braided and/or multiple channels with islands that are most likely within the active floodplain or flood-prone area.

Surface Water Quality

Water quality objectives for surface water and total maximum daily load (TMDL) requirements for the AEWP area are described in the Basin Plan for the Lahontan Region (Lahontan RWQCB, 2006). The purpose of water quality objectives and requirements described in the Basin Plan is to protect designated Beneficial Uses, which are either consumptive (municipal, industrial, and irrigation) or non-consumptive (recreation and habitat). Designated Beneficial Uses relevant to surface waters in the proposed AEWP area are identified below, in Table 3.19-1.

Table 3.19-1. Designated Beneficial Uses for Surface Waters in the Project Vicinity

	Designated Beneficial Uses*																					
Surface Water Feature	**MUN**	**AGR**	**PRO**	**IND**	**GWR**	**FRSH**	**NAV**	**POW**	**REC-1**	**REC-2**	**COM**	**AQUA**	**WAR**	**COLD**	**SAL**	**WILD**	**BIOL**	**RARE**	**MIGR**	**SPWN**	**WQE**	**FLD**	**Receiving Water**
Upper Cache Creek	x	x			x				x	x			x			x							Cache Creek
Cache Creek	x	x			x				x	x			x			x							Fremont Valley
Cache Creek 2	x	x			x				x	x			x			x							Cache Creek / Fremont Valley
Lower Cache Creek	x				x				x	x			x			x							Cache Creek
Proctor Dry Lake, South of Hwy 58	x	x			x				x	x			x			x							Proctor Dry Lake
Minor Surface Waters	x	x			x				x	x	x		x			x							

Notes:

MUN: Municipal and Domestic Supply; AGR: Agriculture Supply; PRO Industrial Process Supply; IND: Industrial Service Supply; GWR: Groundwater Recharge; FRSH: Freshwater Replenishment; NAV Navigation; POW: Hydropower Generation; REC I: Water Contact Recreation; REC II: Non-Contact Water Recreation; COMM Commercial and Sportfishing; AQUA: Aquaculture; WARM: Warm Freshwater Habitat; COLD: Cold Freshwater Habitats; SAL Inland Saline Water Habitat; WILD: Wildlife Habitat; BIOL Preservation of Biological Habitats of Special Significance; RARE Rare, Threatened, or Endangered Species; MIGR Migration of Aquatic Organisms; SPWN Spawning, Reproduction, and Development; WQE Water Quality Enhancement; FLD Flood Peak Attenuation/Flood Water Storage.

Source: Lahontan RWQCB, 2005.

None of the surface water bodies within the AEWP area is listed as impaired on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments (Lahontan RWQCB, 2006).

Flood Hazard Areas

Flood Hazard Areas in the AEWP area are shown on Figure 3.19-2 (Flood Hazard Areas) in Appendix A. Under the National Flood Insurance Program (described below, in Section 3.19.2.1), the Federal Emergency Management Agency (FEMA) has estimated the boundaries of 100-year floodplains, or Flood Hazard Areas, as provided on Flood Insurance Rate Maps (FIRMs). These maps define the predicted boundaries of 100-year floods, or the area of land anticipated to be inundated during a 100-year storm

event, or storms with a one percent chance of occurring each year. Within the proposed AEWP area, a Flood Hazard Area has been designated along Cache Creek, adjacent to the north of the AEWP. FIRMs #06029C3280E and 06029C3285E, Panels 3280 and 3285 of 4125, delineate the Flood Hazard Area surrounding Cache Creek in the AEWP area (FEMA, 2008a; FEMA, 2008b).

Jurisdictional Drainages

A Jurisdictional Wetlands and Other Waters report has been prepared for the proposed AEWP to describe waters and wetlands at the project site and along the transmission line routes. This evaluation was prepared based on desktop review, field delineation of jurisdictional features, and experience with other projects in the vicinity (CH2MHILL, 2011l). Jurisdictional drainages are also discussed in Sections 3.17 (Vegetation Resources) and 3.22 (Wildlife Resources) of this EIS/EIR.

No Waters of the U.S. (federally jurisdictional waters) have been delineated on the AEWP site, and the AEWP is not subject to regulation under Sections 404 or 402 of the federal Clean Water Act (described in Section 3.19.2.1) (CH2MHILL, 2011l).

All surface water and groundwater resources are considered Waters of the State (state jurisdictional waters), and the AEWP is subject to regulation under the Porter-Cologne Water Quality Control Act and require a Section 401 Water Quality Certification permit under the Clean Water Act (discussed below, in Section 3.19.2). Approximately 42 acres of potential Waters of the State have been delineated on the AEWP site, 14 acres of which are associated with Cache Creek. State jurisdictional waters on the AEWP site are characterized by ephemeral streams and desert washes; no probable wetlands were delineated and no riparian vegetation was present along stream corridors. Based on the current AEWP design, features such as access roads and collector lines will intersect ephemeral streams in 99 locations, and will result in approximately five acres of dredge/fill impacts (discussed in Section 4.18 of this EIS/EIR). (CH2MHILL, 2011l)

3.19.1.2 Groundwater

Construction water for the project would be obtained from one of two water purveyors in the region (Mojave Public Utility District and/or Tehachapi-Cummings County Water District), and not from local/on-site groundwater resources. However, discussion of groundwater resources is relevant because during project operations, an on-site groundwater well would be used to obtain approximately 200 gallons of water per day, or 0.224 acre-feet per year (afy) for use at the project's O&M Facility. Though this volume of water is minimal, a discussion of groundwater resources is warranted.

Figure 3.19-3 (Groundwater Resources) in Appendix A shows that the Project site is located within the Fremont Valley Groundwater Basin, which is identified by the California Department of Water Resources (DWR) as groundwater basin #6-46. The Fremont Valley Groundwater Basin underlies 523 square miles of alluvial valley in eastern Kern County and northwestern San Bernardino County. The basin is bounded on the northwest by the Garlock fault zone against impermeable crystalline rocks of the El Paso Mountains and the Sierra Nevada. This basin is bounded on the east by crystalline rocks of the Summit Range, Red Mountain, Lava Mountains, Rand Mountains, Castle Butte, Bissel Hills, and Rosamond Hills. The basin is bounded on the southwest by the Antelope Valley Groundwater Basin along a groundwater divide approximated by a line connecting the mouth of Oak Creek through Middle Butte to exposed basement rock near Gem Hill. (DWR, 2004)

Natural recharge of the Fremont Valley Groundwater Basin includes the percolation of ephemeral streams that flow from the Sierra Nevada. The general groundwater flow direction is toward Koehn Lake at the center of the valley. There is no appreciable quantity of groundwater flowing out of the basin. (DWR, 2004)

Water-bearing materials of the Fremont Valley Groundwater Basin are dominated by Quaternary alluvium and lacustrine deposits. Groundwater in the alluvium is generally unconfined, although locally confined conditions occur near Koehn Lake. (DWR, 2004)

The total storage capacity of the Fremont Valley Groundwater Basin is approximately 4,800,000 acre-feet "Storage capacity" refers to the volume of water potentially capable of being contained within a groundwater basin, not to the volume of water actually present in the basin. Hydrographs indicate that groundwater elevations declined in the southwestern part of the basin by nine (9) feet between 1957 and 1999. Overdraft conditions for the Fremont Valley Groundwater Basin are not known. (DWR, 2004)

Uneven tilting of the Koehn Lake playa indicates that overdraft conditions may be present in parts of the Fremont Valley Groundwater Basin; this tilting causes flooding to occur on the southwest shore of Koehn Lake, creating a permanent hazard (Holzer and Galloway 2005). Cause of the overdraft and subsidence was water withdrawals for alfalfa crop fields (now abandoned) in the Fremont Valley near California City (Pampeyan et al. 1988). Water withdrawn from the Fremont Valley Groundwater Basin to support the Project's operational water requirements may contribute to overdraft and/or subsidence issues, as discussed in Section 4.19.3.1.

No primary maximum contaminant levels (MCLs) are exceeded within the Fremont Valley Groundwater Basin, although groundwater in parts of the basin has high concentrations of Total Dissolved Solids (TDS), including fluoride and sodium (DWR, 2004).

Uneven tilting of the Koehn Lake playa indicates that overdraft conditions may be present in parts of the Fremont Valley Groundwater Basin; this tilting causes flooding to occur on the southwest shore of Koehn Lake, creating a permanent hazard (Holzer and Galloway 2005). Cause of the overdraft and subsidence was water withdrawals for alfalfa crop fields (now abandoned) in the Fremont Valley near California City (Pampeyan et al. 1988). Water withdrawn from the Fremont Valley Groundwater Basin to support the Project's operational water requirements may contribute to overdraft and/or subsidence issues, as discussed in Section 4.20.3.1.

No primary maximum contaminant levels (MCLs) are exceeded within the Fremont Valley Groundwater Basin, although groundwater in parts of the basin has high concentrations of Total Dissolved Solids (TDS), including fluoride and sodium (DWR, 2004).

3.19.2 Applicable Regulations, Plans, and Standards

Construction of the Project would be subject to County, State, and federal water quality regulations, as discussed below.

3.19.2.1 Federal

Clean Water Act (CWA)

The CWA (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the U.S. The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and has given the Environmental Protection Agency (EPA) the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to the SWRCB and administered by the nine RWQCBs. As mentioned, the proposed AEWP is located within the jurisdiction of the Lahontan RWQCB.

Section 401, Water Quality Certification.

Section 401 of the CWA requires that any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into a state waterbody, must be certified by the RWQCB. This certification ensures that the proposed activity does not violate state and/or federal water quality standards. The limits of non-tidal waters extend to the Ordinary High Water (OHW) line, defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris. The USACE may issue either individual, site-specific permits or general, nationwide permits for discharge into U.S. waters.

Section 402, National Pollutant Discharge Elimination System (NPDES).

Section 402 of the CWA authorizes the California SWRCB to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

For the Project, NPDES regulations are administered by the Lahontan RWQCB.

Section 404, Discharge of Dredged or Fill Materials.

Section 404 of the CWA establishes programs to regulate the discharge of dredged and fill material in waters of the U.S., including wetlands. When an application for a Section 404 permit is made the applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the U.S. or wetlands. A Water Quality Certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. Project activities would adhere to State and federal water quality standards and would be in compliance with Sections 401 and 404 of the CWA.

As described above (see "Surface Water"), no wetlands or other waters identified on the Project site are anticipated to be subject to regulation under the CWA by the USACE because all surface drainages flow toward Rosamond and Rogers Dry Lakes, and terminate in the soils of the bajada; therefore, all wetlands and other water features on the Project site are isolated, with no significant nexus to a traditional navigable water. USACE concurrence with the determination of no federal jurisdiction for on-site drainages is pending.

Section 303, Water Quality Standards and Implementation Plans.

Section 303(d) of the CWA (CWA, 33 United States Code 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the USEPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to

prioritize waters and watersheds for future development of Total Maximum Daily loads (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements. No surface waters within the project boundaries or downstream of the project are identified on the most recent CWA Section 303(d) listing.

National Flood Insurance Program (NFIP)

The NFIP, implemented by the Congress of the U.S. in 1968, enables participating communities to purchase flood insurance. Flood insurance rates are set according to flood-prone status of property as indicated by FIRM developed by the FEMA. FIRMs identify the estimated limits of the 100-year floodplain for mapped watercourses, among other flood hazards. As a condition of participation in the NFIP, communities must adopt regulations for floodplain development intended to reduce flood damage for new development through such measures as flood proofing, elevation on fill, or floodplain avoidance. Kern County participates in the NFIP. In the Project area, FIRMs #06029C3280E and 06029C3285E, Panels 3280 and 3285 of 4125, delineate the Flood Hazard Area surrounding Cache Creek in the Project area (FEMA, 2008a; FEMA, 2008b).

3.19.2.2 State

Department of Water Resources (DWR)

The California DWR major responsibilities include preparing and updating the California Water Plan to guide development and management of the State's water resources; planning, designing, constructing, operating, and maintaining the State Water Resources Development System; regulating dams; providing flood protection; assisting in emergency management to safeguard life and property; educating the public; and serving local water needs by providing technical assistance. In addition, DWR cooperates with local agencies on water resources investigations; supports watershed and river restoration programs; encourages water conservation; explores conjunctive use of ground and surface water; facilitates voluntary water transfers; and, when needed, operates a State drought water bank.

Senate Bill 610

Senate Bill (SB) 610 was passed on January 1, 2002, amending California State law to require detailed analysis of water supply availability for large development projects. The primary purpose of SB 610 is to improve the linkage between water and land use planning by ensuring greater communication between water providers and local planning agencies, and ensuring that land use decisions for certain large development projects are fully informed as to whether sufficient water supplies are available to meet project demands. SB 610 requires the preparation of a Water Supply Assessment (WSA) for a project that is subject to CEQA and meets certain requirements, described below with regards to the proposed AEWP.

1) Is the proposed project subject to CEQA?

   Yes. As presented in this EIS/EIR, the proposed AEWP requires issuance of permits by a public agency and is, therefore, subject to CEQA.

2) Is the proposed project a “Project” under SB 610?

   - A proposed residential development of more than 500 dwelling units;
   - A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
   - A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
   - A proposed hotel or motel, or both, having more than 500 rooms;

- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one (1) or more of the projects specified in this subdivision; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project (DWR, 2003).

The proposed AEWP would be an industrial facility, but it would not be an "industrial plant" with more than 1,000 persons or an "industrial park" planned to house more than 1,000 persons. Therefore, the proposed AEWP is not considered to meet the definition of "Project" per SB 610.

3) Is there a public water system that will service the proposed project?

Construction of the proposed AEWP is anticipated to require 113 to 150 acre-feet of water over the nine- to 12-month construction period; this supply would be obtained from one of two following water purveyors in the region: Mojave Public Utility District (MPUD) and/or Tehachapi-Cummings County Water District (TCCWD). No construction water would be pumped by the Applicant from the Fremont Valley Groundwater Basin. United States Code Title 42 Section 300f(4) describes that the term "public water system" refers to a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty five individuals (42 U.S.C. Sec. 300f(4)). As such, MPUD and TCCWD are both considered public water systems. For the purposes of SB 610, where a public water system would be used for a project, the requirement to prepare a WSA is the responsibility of either the water purveyor (MPUD and/or TCCWD) or the CEQA Lead Agency (Kern County).

Operation of the proposed AEWP is anticipated to require approximately 200 gallons of water per day, or 0.224 afy; this volume of water is minimal compared to the 125 to 250 afy that would be required by a 500-dwelling-unit project (noted above as one of the criteria under which an action is considered a "Project" per SB 610). During operation of the AEWP, the Project Proponent would use an on-site groundwater well to obtain the required water supply from the Fremont Valley Groundwater Basin. As such, operational water would not be provided by a public water system and a WSA, if required, would be the responsibility of either the Project Proponent or the CEQA Lead Agency. The applicability of SB 610 during project operations is further discussed below, under "Senate Bill 267."

4) Is there a current UWMP that accounts for the project demand?

The project's construction water supply would be provided by MPUD and/or TCCWD; water management plans associated with these water purveyors are described below.

- **Mojave Public Utility District.** Water service to the Mojave community is provided by MPUD, which produces approximately 75 percent of its water supply from the Chafee and Proctor Subunits, which are part of the Antelope Valley Groundwater Basin (Kern County, 2003; Boyle, 2004). Supplemental water supplies are available to MPUD as State Water Project (SWP) water obtained through the Antelope Valley-East Kern Water Agency (Boyle, 2004). MPUD prepared an Urban Water Management Plan (UWMP) in 2004, although it is not required to because of the utility's small size. According to MPUD, estimated available supplies will be able to meet the community of Mojave's development demands (Boyle, 2004). Water demands are based on reasonable growth and on the assumption that growth will occur considering land uses for residential, commercial, industrial, public facilities, and other service areas (CH2MHill, 2011d).
- **Tehachapi-Cummings County Water District.** TCCWD is the court-designated Watermaster responsible for managing three adjudicated groundwater basins, including the Cummings Basin, Brite

Basin, and Tehachapi Basin. Groundwater users in the Cummings, Brite, and Tehachapi basins include agricultural, municipal, and industrial. In 1973, when these basins were adjudicated, pumping allocations (safe yield) of 4,090 afy, 500 afy, and 5,524 afy, respectively, were designated for these basins, and TCCWD manages groundwater use accordingly. TCCWD also manages imported SWP water supplies, which it receives through contracts with the Kern County Water Agency. Total water available during normal-year, single-dry-year, and multiple-dry-year scenarios is presented in the Greater Tehachapi Area (GTA) Specific Plan, Appendix I, Updated Water Supply Assessment. Given the projections in the GTA Specific Plan, available water exceeds demand during normal, single dry, and multiple dry year scenarios in consideration of existing and planned future uses, including agricultural and manufacturing uses. (CH2MHill, 2011d)

As described above, MPUD water supplies are management under an existing UWMP, while TCCWD water supplies are managed under court adjudication and per the Water Supply Assessment included in the GTA Specific Plan. In accordance with SB 610, these existing management plans may be used in whole or part to satisfy the WSA requirements, if applicable (DWR, 2003).

The project's operational water supply would be obtained from an on-site groundwater supply well pumping Fremont Valley Groundwater Basin. There is no UWMP applicable to this area. Therefore, in accordance with SB 610, a WSA must be prepared (if applicable) based on available evidentiary record (DWR, 2003).

5) Is groundwater a component of the supplies for the project?

As described above, the project's construction water source is MPUD and/or TCCWD, both of which use groundwater as a portion of their supply; however, because MPUD and TCCWD are both public water systems (see item [3], above) which are managed under existing management plans (see item [4], above), the Project Proponent is not required to assess groundwater supply availability in a WSA, assuming applicability of SB 610.

Also as described above, the project's operational water source is the Fremont Valley Groundwater Basin. During the lifetime of the proposed AEWP, approximately 0.224 afy of water would be pumped from this basin at an on-site groundwater supply well in order to meet operational water requirements. Therefore, groundwater is a component of supplies for the project, and a WSA is required if it is determined that SB 610 is applicable to the project.

Senate Bill 267

SB 267 was signed into law by California's Governor Brown on October 8, 2011, amending California's Water Law to revise the definition of "project" specified in SB 610, as discussed above. Under SB 267, wind and photovoltaic projects which consume less than 75 afy of water are not considered to be a "project" under SB 610; subsequently, a WSA would not be required for this type of project. This 75-afy threshold is discussed below with respect to construction and operation of the proposed AEWP.

- **Construction.** The proposed AEWP would require 113 to 150 acre-feet of water during the nine- to 12-month construction period, which is more than the 75 afy specified by SB 267; however, this construction demand would be obtained from existing public water systems (MPUD and/or TCCWD) which are managed under existing management plans, and a WSA is therefore not required for this portion of the project.
- **Operation.** Operation of the proposed AEWP would include pumping of approximately 0.224 afy of water from the Fremont Valley Groundwater Basin; this demand is far less than the SB 267 threshold of 75 afy and therefore, SB 610 is not applicable and a WSA is not required for operational water.

SB 267 does not state that renewable energy projects which use more than 75 afy are subject to SB 610 and must prepare a WSA; rather, it clarifies that those renewable projects which use less than 75 afy are not subject to such requirements. Nevertheless, an assessment of water supply reliability relevant to MPUD and TCCWD has been prepared for the project and is included as Appendix I of this EIS/EIR.

Porter-Cologne Water Quality Control Act

The SWRCB regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. On the regional level, the Project falls under the jurisdiction of the Lahontan RWQCB, which is responsible for the implementation of State and federal water quality protection statutes, regulations, and guidelines. The Lahontan Region has developed a Water Quality Control Plan (Basin Plan) to guide management of the quality of the surface and ground waters in the Region. The Basin Plan lists beneficial uses of water within the region; describes the water quality which must be maintained to allow those uses; describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan; and summarizes plans and policies to protect water quality. The AEWP would be expected to not disrupt current or designated beneficial uses of surface waters.

Under Porter-Cologne, California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge (an application for waste discharge requirements (WDR)) to the applicable RWQCB. Any actions related to the Project that would be applicable to California Water Code §13260 would be reported to the Lahontan RWQCB. Dischargers such as the proposed AEWP must notify the regional water board when a project will result in the discharge of dredged or fill material to Waters of the State, and the RWQCB is required to issue or waive WDRs whenever it receives a report of discharge; per California Water Code §13263(a):

> *The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge… with relation to the conditions existing in the disposal area or receiving waters upon, or into which the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose.*

For construction projects having small dredge/fill impacts to non-federal waters of the State, and that are not required to obtain an NPDES permit (i.e., the General Construction Permit adopted by the SWRCB), coverage under general WDRs may be obtained from the Lahontan RWQCB (R6T-2003-0004). As described above in Section 3.19.1.1 (see "Jurisdictional Drainages"), no federally jurisdictional waters have been delineated on the AEWP site. Approximately 42 acres of State jurisdictional waters have been delineated on the AEWP site, and the AEWP is anticipated to result in approximately five acres of dredge/fill impacts (discussed in Section 4.18 of this EIS/EIR). The proposed AEWP would be required to obtain Waste Discharge Requirement coverage from the Lahontan RWQCB, per the authority of California Water Code §13260 and the Porter Cologne Water Quality Control Act.

Streambed Alteration Agreement (California Fish and Game Code)

Section 1602 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Game (CDFG) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State; and requires any person, State or local governmental agency, or public utility to notify the CDFG before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

During final engineering and design of the AEWP, if it is determined that any project-related actions would have the potential to necessitate a Streambed Alteration Agreement, then such an agreement would be prepared and implemented prior to construction of the Project, thus maintaining compliance with §1602 of the California Fish and Game Code. A Streambed Alteration Agreement is required if the CDFG determines the activity could substantially adversely affect an existing fish and wildlife resource. The agreement includes measures to protect fish and wildlife resources while conducting the project.

California Water Code §13260

California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the project that would be applicable to California Water Code §13260 would be reported to the Lahontan RWQCB.

California Water Code §13751

California Water Code §13751 requires a Report of Well Completion to be filed with the Department of Water Resources within 60 days of well completion. New wells must comply with California DWR Well Standards as described in Water Resources Bulletins 74-81 and 74-90.

NPDES General Construction Permit

The NPDES was established per 1972 amendments to the federal Water Pollution Control Act, in order to control discharges of pollutants from point sources (Section 402). As described above, under "Federal," 1987 amendments to the Clean Water Act created a new section of the act devoted to storm water permitting (Section 402[p]), with individual States designated for administration and enforcement of the provisions of the Clean Water Act and the NPDES permit program. The SWRCB issues both General Construction Permits and individual permits under this program.

Projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the SWRCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. The Project proponent must control measures that are consistent with the State General Permit. A SWPPP must be developed and implemented for each site covered by the General Permit. A SWPPP describes BMPs the discharger will use to protect stormwater runoff and reduce potential impacts to surface water quality through the construction period. The SWPPP must contain the following: a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment (SWRCB 2009). The area that would be disturbed under the project exceeds one acre and; therefore, the Project would be required to comply with the General Permit.

3.19.2.3 Local – Kern County

As described in Section 2.3, the AEWP site is located within the boundaries of Kern County General Plan (KCGP), while the AEWP transmission line is within the boundaries of the Mojave Specific Plan; both of these plans are discussed below, with regards to water resources.

Kern County General Plan (KCGP)

The policies, goals, and implementation measures in the KCGP for hydrology and water quality applicable to the Project are provided below. The KCGP, originally adopted on June 15, 2004, and last amended on April 1, 2008, contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the AEWP. Therefore, they are not listed below, but, as stated in Chapter 2, "Introduction," all policies, goals, and implementation measures in the KCGP are incorporated by reference.

Chapter 1. Land Use, Open Space, and Conservation Element

Section 1.3 Physical and Environmental Constraints

Policies

- Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.
- Policy 6. Regardless of percentage of slope, development on hillsides will be sited in the least obtrusive fashion, thereby minimizing the extent of topographic alteration required and reducing soil erosion while maintaining soil stability.
- Policy 7. Ensure effective slope stability, wastewater drainage, and sewage treatments in areas with steep slopes are adequate for development.
- Policy 8. Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.
- Policy 9. Construction of structures that impede water flow in a primary floodplain will be discouraged.
- Policy 10. The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.
- Policy 11. Protect and maintain watershed integrity within Kern County.

Implementation Measures

- Implementation Measure E. Development proposed in areas with steep slopes will be reviewed for conformity to the adopted Hillside Development Ordinance to ensure that appropriate soil stability, drainage, and sewage treatment will result.
- Implementation Measure F. The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.
- Implementation Measure H. Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.
- Implementation Measure I. Designated flood channels and water courses, such as creeks, gullies, and riverbeds, will be preserved as resource management areas or in the case of urban areas, as linear parks whenever practical.

- Implementation Measure J. Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.
- Implementation Measure N. Project Proponents for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

Section 1.9 Resources

Policies

- Policy 11. Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Section 1.10.6 Surface Water and Groundwater

Policies

- Policy 34. Ensure that water quality standards are met for existing users and future development.
- Policy 40. Encourage utilization of community water systems rather than the reliance on individual wells.
- Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.
- Policy 43. Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.
- Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by CEQA, to prevent the degradation of the watershed to the extent practical.
- Policy 46. In accordance with the Kern County Development Standards, tank truck hauling of domestic water for land developments or lots within new land developments is not permitted.

Implementation Measures

- Implementation Measure Y. Promote efficient water use by utilizing measures such as:
  i. Requiring water-conserving design and equipment in new construction.
  ii. Encouraging water-conserving landscaping and irrigation methods.
  iii. Encouraging the retrofitting of existing development with water conserving devices.

Mojave Specific Plan

Policies

- Policy 4.1.1. Require amendments to the Plan to show that sufficient water, including fire flow, exists to serve the proposed project(s) without impacting service to existing uses or resulting in long-term decline and overdraft of groundwater resources.
- Policy 4.1.4. Require compliance for development projects with the requirements of the California Water Code Section 10910 regarding water supply.

- Policy 4.2.1. Support regional efforts by the South Lahontan Regional Water Quality Control Board to improve and protect water quality. Promote compliance with the measures contained in the California Water Code and other requirements.
- Policy 4.2.2. If required, new development projects shall implement Best Management Practices (BMPs) under the National Pollution Discharge Elimination System (NPDES) permit. These practices are designed to reduce pollution runoff during construction of new projects and rehabilitation projects. Investigate and implement methods as appropriate over time to address the control of pollutants in stormwater runoff from development sites, and to encourage the recycling of runoff for groundwater recharge and similar beneficial purposes.
- Policy 4.2.3. Require industrial and commercial businesses to comply with the County Hazardous Waste Management Plan (CHWMP).
- Policy 4.2.4. Prohibit use of septic systems in areas where soils have been determined to be unsuitable for such systems.

Kern County Zoning Ordinance (Title 19)

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to hydrology and water quality issues related to the AEWP.

Chapter 19.64 Wind Energy (WE) Combining District

In 1986, the WE Combining District was adopted as Chapter 19.64 of the Kern County Zoning Ordinance. The WE Combining District promotes the development of wind energy in Kern County. The WE Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provision applies to hydrology and water quality issues related to the AEWP.

- Section 19.64.140.K. Prior to issuance of any grading permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared by a registered civil engineer or other professional and submitted for approval by the Director of the Engineering, Surveying, and Permit Services Department. The soil erosion and sedimentation control plan shall be consistent with the applicable requirements of the California RWQCB pertaining to the preparation and approval of Storm Water Pollution Prevention Plans. Notwithstanding the foregoing, the revegetation portion of the soil erosion and sedimentation plan shall be prepared by a professional biologist or other professional approved, in advance, by the Engineering, Surveying, and Permit Services Department.
- The plan shall include a timetable for full implementation, estimated costs, and a surety bond or other security as approved by the Engineering, Surveying, and Permit Services Department in an amount determined by that department to guarantee plan implementation. The soil erosion and sedimentation control plan, including the revegetation plan and security instrument, shall be submitted to, and approved by, the Floodplain Management Section of the Engineering, Surveying, and Permit Services Department prior to the issuance of any grading permit. The security shall remain on file with the Engineering, Surveying, and Permit Services Department until that department has verified that the plan has been successfully implemented.

Chapter 19.70 Floodplain Combining District

- Section 19.70.040. Section 19.70.040 of the Kern County Zoning Ordinance prohibits the following uses in the Floodplain Combining District:

  A. All uses prohibited by the base district with which the FP District is combined.

B. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 19.70.130 of this chapter.

C. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Engineering, Surveying, and Permit Services Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Kern County Engineering, Surveying, and Permit Services Department and constructed in accordance with Section 19.70.130 of this chapter.

D. Storage of junk or salvage operations.

E. Oil storage tanks or processing equipment, unless floodproofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Engineering, Surveying, and Permit Services Department.

F. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Engineering, Surveying, and Permit Services Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

G. Sources of water supply (e.g., wells, springs) unless protected by flood control devices approved by the Kern County Engineering, Surveying, and Permit Services Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

H. Any use which endangers the temporary safeguards erected for flood protection.

Building and Construction Ordinance

Chapter 17.28 Kern County Grading Code

Requirements of the Kern County Grading Code will be implemented. A grading permit will be obtained prior to commencement of construction activities. Sections of the Kern County Grading Code that are particularly relevant to the issue area of hydrology and water quality are presented below.

Section 17.28.130: Drainage and Terracing.

- General. Unless otherwise indicated on the approved grading plan, drainage facilities and terracing shall conform to the provisions of this section for cut or fill slopes steeper than three (3) units horizontal to (1) unit vertical.
- Terrace. Terraces at least six (6) feet in width shall be established at not more than thirty (30) foot vertical intervals on all cut or fill slopes to control surface drainage and debris except that where only one (1) terrace is required, it shall be at mid-height. For cut or fill slopes greater than sixty (60) feet and up to one hundred twenty (120) feet in vertical height, one (1) terrace at approximately mid-height shall be twelve (12) feet in width. Terrace widths and spacing for cut and fill slopes greater than one hundred twenty (120) feet in height shall be designed by a civil engineer and approved by the building official. Suitable access shall be provided to permit proper cleaning and maintenance.
- Swales or ditches on terraces shall have a minimum gradient of five (5) percent and must be paved with reinforced concrete not less than three (3) inches in thickness or an approved equal paving. They shall have a minimum depth at the deepest point of one (1) foot and a minimum paved width of five (5) feet. A single run of swale or ditch shall not collect runoff from a

tributary area exceeding thirteen thousand five hundred (13,500) square feet (projected) without discharging into a down drain.

- Subsurface Drainage. Cut and fill slopes shall be provided with subsurface drainage as necessary for stability.
- Disposal. All drainage facilities shall be designed to carry waters to the nearest practicable drainage way approved by the building official and/or other appropriate jurisdiction as a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive downdrains or other devices. Building pads shall have a drainage gradient of two (2) percent toward approved drainage facilities, unless waived by the building official.
- EXCEPTIONS: The gradient from the building pad may be 1 percent if all of the following conditions exist throughout the permit area:
  1. No proposed fills are greater than ten (10) feet in maximum depth.
  2. No proposed finish cut or fill slope faces have a vertical height in excess of ten (10) feet.
  3. No existing slope faces, which have a slope face steeper than ten (10) units horizontally to one (1) unit vertically, have a vertical height in excess of ten (10) feet.
- Interceptor Drains. Paved interceptor drains shall be installed along the top of all cut slopes where the tributary drainage area above slopes toward the cut and has a drainage path greater than forty (40) feet measured horizontally. Interceptor drains shall be paved with a minimum of three (3) inches of concrete or gunite and reinforced. They shall have a minimum depth of twelve (12) inches and a minimum paved width of thirty (30) inches measured horizontally across the drain. The slope of drain shall be approved by the building official.
- Section 17.28.140: Erosion Control. Please see Section 3.14.2, Soil Resources.
- Section 17.28.150: Drainage Retention Facilities. General. All drainage retention/detention facilities and their associated conveyance facilities shall be designed in accordance with the Kern County Development Standards or latest revision thereof.

Chapter 17.48 Kern County Floodplain Management

Any construction that takes place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of unincorporated Kern County will comply with the requirements and construction design specifications of this ordinance. Any required development permits will be obtained prior to commencement of construction activities.

3.20 Wildland Fire Ecology

This section describes relevant environmental and regulatory settings related to the potential impacts of the Alta East Wind Project (AEWP) on wildland fires and related fire protection activities.

The analysis in this section utilizes, in part, the *US Forest Service Guidance for Implementation of Federal Wildland Fire Management Policy* (USFS, 2008), and the *Alta East Wind Project – Geological Resources Technical Memorandum*, prepared by CH2MHill (CH2MHill, 2010). The complete text of this Geotechnical Report is provided as Appendix F of this EIR.

3.20.1 Environmental Setting

The behavior and characteristics of wildfires are dependent on a number of biophysical and anthropogenic (human-caused) factors. The biophysical variables are fuels (including composition, cover, and moisture content), weather conditions (particularly temperature, humidity and wind velocity), topography (slope and aspect), and ignition sources (e.g., lightning). The anthropogenic variables are ignitions (e.g., arson, smoking, and power lines) and management (wildfire prevention and suppression efforts).

Vegetation with low moisture content is more susceptible to ignitions and burns more readily than vegetation with higher moisture content. Grasses tend to ignite more easily and burn faster, but tend to burn for a shorter duration than woody vegetation such as shrubs and trees. Continuity of fuels helps sustain wildland fires. Dense vegetation tends to carry a fire farther than patchy vegetation. The presence of invasive annual grasses, however, can provide fuel connectivity in patchy desert shrublands that would otherwise provide inconsistent fuel for a wildland fire.

High winds provide oxygen to wildfires and can also blow glowing embers off burning vegetation to areas far ahead of the front of a fire, allowing fires to jump fuel breaks in some cases. Conditions of low relative humidity will dry out fuels, increasing the likelihood of ignition. Finally, steep slopes and slopes with exposure to wind will carry fires rapidly uphill. Fires that are extinguished in mountainous areas are often contained along ridgelines.

Fuel loading or fuel volume is reported in tons of fuel available per acre. The higher the fuel loading, the more heat that will be produced during a fire. Fuel regimes can change as the result of invasive weeds changing the existing and historic vegetation of an area, as well as ground disturbance changing the existing and historic fuel types. These activities can also change the fuel loading of an area.

Vegetation at the AEWP site consists of desert scrub. Three general community types were identified in the AEWP area: creosote bush scrub; Mojave mixed woody scrub and California buckwheat scrub (CH2MHILL, 2011a). Substantial overlap in species composition occurs among the community types and the boundaries are generally diffuse with gradual transitions between these three vegetative community types. The study area for wildfire ignition is defined as the area within three miles of the AEWP boundary to the north and west, and within one mile of the AEWP boundary to the east and south. Based on the type of vegetation and topography in the area, this study area represents a reasonable maximum extent of a wildfire ignited at the AEWP site. This study area is an estimate, and is considered feasible due to varying winds, humidity levels, etc. This study area accounts for the urbanization to the east and south of the site, in addition to SR 58 bisecting the northern portion of the site and creating a likely fire break. Due to the escalating topography of the area when traveling north and west of the site, this area increases the geography due to the increase in wind travel and ability for ignition sources to travel between lower topography within the AEWP site and these adjacent higher ground areas.

Smoke from wildland fire can result in a large and growing source of air pollution emanating from wildland fires. Smoke from this type of burn contains hundreds of chemicals in the form of gases, liquids, and solids. Smoke can pose potential health, visibility, safety, and nuisance problems. Forest managers, fire managers, and air resource specialists must address these issues when and where appropriate to

minimize smoke impacts to public health and welfare. The study area for smoke can reach far beyond that utilized for wildfire ignition related to the AEWP. Refer to Sections 3.2 and 4.2, Air Quality, for a description of existing air quality within this study area and information pertaining to existing/typical wind and dispersion conditions.

Sensitive receptors nearby the site include residences in the community of Mojave, which is located approximately three miles southeast of the AEWP site. The cities of Tehachapi, located 15 miles west, and California City, located 10 miles east, are within proximity with respect to wildfire and smoke. No wildfires have been recorded in the AEWP area in the last ten years, but the September 5, 2011 Canyon Fire grew to within 3 miles southwest of the AEWP transmission line (GeoMAC, 2011).

Fire Hazard Severity Zones (FHSZs) are areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors that have been mapped by the California Department of Forestry and Fire Protection (Cal Fire) under the direction of Public Resources Code (PRC) 4201-4204 and Government Code 51175-89 (Cal Fire, 2007). FHSZs are ranked from "moderate" to "very high" and are categorized for fire protection as within a federal responsibility area (FRA) under the jurisdiction of a federal agency, within a State responsibility area (SRA) under the jurisdiction of Cal Fire, or within a local responsibility area (LRA) under the jurisdiction of a local agency. The AEWP site is designated both an FRA (under the jurisdiction of BLM) and SRA (under the jurisdiction of Cal Fire), and designated a moderate FHSZ (Cal Fire, 2011a and 2007). The AEWP site is located in an area with both "Moderate" and "Non-Wildland/Non-Urban" fire threat ratings.

Cal Fire established the Kern County Fire Department's (KCFD) Wildland Fire Management Plan (WFMP), as discussed further below in Section 3.20.2.3, assessing the wildland fire situation throughout the SRA within Kern County. Although a portion of the AEWP site is located within State jurisdiction, the KCFD provides fire suppression and emergency medical services on all lands in Kern County. Furthermore, in conjunction with the U.S. Forest Service (as a stakeholder in the WFMP), the KCFD would serve as first responder to the FRA designated portions of the AEWP site.

The KCFD operates 46 full-time fire stations, and is divided into seven (7) battalions for operational management. The AEWP site is located in Battalion 1 (Tehachapi), which encompasses the southeastern portion of Kern County with the exception of Edwards Air Force Base. The following four (4) stations are located within 30 miles of the AEWP:

- **Station 14**: Mojave Station. This station is located at 1953 State Highway 58, near the intersection with SR-14 in the Community of Mojave. Station 14 is located 3 miles east of the site and covers a response area of 431 square miles (KDSA, 2011).
- **Station 12**: Tehachapi Station. This station is located at 800 South Curry Street in the City of Tehachapi, 11 miles west of the site. Its 220-square-mile response area includes the AEWP site (KDSA, 2011).
- **Station 15**: Rosamond Station. This station is located 1/8 mile north of Rosamond Boulevard (3219 35th Street West), 14 miles south of the AEWP site. Station 15 covers a response area of 248 square miles (KDSA, 2011).
- **Station 18**: Stallion Springs. This station is located at 28381 Braeburn Place in Stallion Springs. Station 18 is located 19 miles west of the AEWP site, and covers a response area of 46 square miles (KDSA, 2011).

The response area for all of these stations encompasses high desert watershed, highway, and rural communities. Station 14 (Mojave) would be the primary responder to a fire event at the AEWP site; however, in the event of a major fire, resources from any of the surrounding stations, including Tehachapi, Rosamond, and Stallion Springs, would be called on to respond, as necessary.

BLM Fire Program

The Fire Program of the Bakersfield Field Office has primary responsibility for protecting 1.5 million acres of land from wildfire and implementing the BLM Fire Management Plan and Fire Program of the area. This includes 250,000 acres of State and privately owned land, as well as public lands managed by the BLM (BLM, 2012). The Bakersfield Field Office works cooperatively with many other federal, state and county agencies and fire departments. Besides providing immediate assistance on fires in Kern County, BLM firefighters and equipment are dispatched throughout the United States, wherever and whenever assistance is needed to fight wildland fires.

The Bakersfield Field Office operates eight BLM fire stations from mid-April through the end of October each year (BLM, 2012). BLM fire stations are at Chimney Peak, South Fork, Midway, Kernville, and Bakersfield. The station Kernville is operated jointly by both the US Forest Service and the Bureau of Land Management. Bakersfield Field Office fire staff consists of 35 full-time employees, with work force increasing to about 80 people during fire season. Besides our fire staff, other BLM staff support the fire program in many ways, from providing necessary administrative support to firefighting.

3.20.2 Applicable Regulations, Plans, and Standards

3.20.2.1 Federal

Bureau of Land Management California Desert Conservation Area (CDCA) Plan

The AEWP would be located within the boundaries of the BLM's CDCA (BLM, 2007). The CDCA, which covers 25 million acres of land, serves as the BLM's land use guide for management of these public lands. BLM land use designations for the AEWP are depicted in Figure 2-4 in Appendix A. As shown, the AEWP is located within areas in the CDCA that are designated as Multiple-Use Class L (Limited Use), Class M (Moderate), and Unclassified. Unclassified lands are managed on a case-by-case basis, per the BLM Land Tenure Adjustment Element. BLM lands that are designated as Multiple-Use Class L (Limited Use) and Class M (Moderate) are subject to the following multiple use class guidelines:

- **9.0 Fire Management**. Fire suppression measures will be taken in accordance with specific fire management plans to be followed by the authorized officer, and may include the use of motorized vehicle, aircraft, and fire retardant chemicals.
- **Chapter III (Guidelines for Specific Activities), F. Fire Management**. BLM will continue all pre-suppression, suppression, and post-suppression fire activities under current methods of operation, using caution to avoid unnecessary implement of an area's suitability for preservation as wilderness, until new fire management plans are developed for specific wilderness study areas.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines (FERC, 2011). These clearances vary depending on voltage. In most cases, however, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation (NERC) Standards as the electric safety standard for the State. Since the state regulations meet or exceed the FERC standards, the FERC requirements are not discussed further in this section, as compliance with the state requirements will ensure that the federal requirements are met.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995 and updated in 2001 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coor-

dinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgement of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founding on the following guiding principles (USFS, 2008):

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

National Electric Safety Code 1977, 2006

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

3.20.2.2 State

California Fire Code

The California Fire Code is contained within Chapter 9 of Title 24 of the California Code of Regulations (CCR). The California Fire Code is created by the California Buildings Standards Commission and regulates fire suppression and prevention at fixed facilities. The California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

CCR Title 14, Section 1254

CCR 14 Section 1254 presents guidelines for minimum clearance requirements on non-exempt utility poles. The proposed AEWP structures would be primarily exempted from the clearance requirements with the exception of cable poles and dead-end structures. As shown in Figure 4.8-1 of CCR 14 Section 1254, the firebreak clearances required by PRC 4292 (as described below) are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of 14, CCR, 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point

at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level – remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will propagate fire
- From 0 to 2.4 m (0- to 8 feet) above ground level remove flammable trash, debris or other materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 m (8 feet).
- From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment remove dead, diseased or dying limbs and foliage from living sound trees and any dead, diseased or dying trees in their entirety.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to, standard requirements.

California Fire Plan

The California Fire Plan is the statewide plan for reducing the risk of wildfire. The basic principles of the Fire Plan are as follows:

- Involve the community in the fire management planning process
- Assess public and private resources that could be damaged by wildfires
- Develop pre-fire management solutions and implement cooperative programs to reduce community's potential wildfire losses.

One of the more important objectives of the plan regards pre-fire management solutions. Included within the realm of pre-management solutions are fuels breaks, the establishment of Wildfire Protection Zones, and prescribed fires to reduce the availability of fire fuels. In addition, the Fire Plan recommends that clearance laws, zoning, and related fire safety requirements implemented by state and local authorities address fire-resistant construction standards, hazard reduction near structures, and infrastructure (California Board of Forestry, 2010). The Fire Plan does not contain any specific requirements or regulations. It acts as more of an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place.

California Public Utilities Commission (CPUC) General Order 95: Rules for Overhead Electric Line Construction

General Order (GO) 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in the State. It was adopted in 1941 and updated most recently in 2009. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements (CPUC, 2009). The latter, governed by rule 35, and inspection requirements, governed by Rule 31.2 are summarized here.

Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but less than 300,000 Volts. This requirement would apply to the proposed 230-kV lines.

Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard.

California Public Resources Code (PRC) 4291

PRC 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line (Cal Fire, 2011b).

California PRC 4292, Powerline Hazard Reduction

PRC 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Proposed AEWP structures would be primarily exempt due to their design specifications.

California PRC 4293, Powerline Clearance Required

PRC 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110,000 volts or higher.

3.20.2.3 Kern County

Kern County General Plan (KCGP), Chapter 4 (Safety Element) Section 4.6: Wildland and Urban Fire

Policies

- **Policy 1**. Require discretionary projects to assess impacts on emergency services and facilities.
- **Policy 3**. The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.
- **Policy 4**. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.
- **Policy 6**. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

- **Implementation Measure A**. Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.
- **Implementation Measure L**. Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

Hazard Identification

- Access and Evacuation Routes - Good planning principles, as well as existing policies and laws, dictate that all developments must be planned with circulation routes that will assure safe

access for fire and other emergency equipment. The circulation routes must include secondary means of ingress and egress, consistent with topography, to meet emergency needs.

- The general circulation routes are provided throughout the County by Federal, State, and County-maintained road systems which are adequate for access and evacuation. State and County laws regulate the standards for new public circulation routes.
- Private circulation routes that are not maintained by the State or County are subject to the standards set forth in Kern County Ordinance No. G-1832.
- Clearance of Vegetative Cover for Fire Control - In 1963 the State of California enacted the Public Resources Code clearance law. This is a minimum statewide clearance law of flammable vegetative growth around structures, especially in brush- and tree- covered watershed areas. The enactment of a local ordinance is necessary where more restrictive fire safety clearance measures are desirable to meet local conditions.
- Fuel Breaks and Firebreaks - Fuel breaks and/or firebreaks separating communities or clusters of structures from the native vegetation may be required. Such fuel breaks may be "greenbelts," as all vegetation need not be removed but thinned or landscaped to reduce the volume of fuel.
- All fuel and firebreaks are required to meet the minimum design standards of the Kern County Fire Chief.
- The Fire Department's Chief may require a fire plan for a development during the critical fire season. This plan should reflect the proposed course of action for fire prevention and suppression.
- The parcel size and setback distances of buildings placed thereon should be such that adequate clearance of flammable vegetation cover may be performed within the limits of the owner's parcel of land.
- Should the owner of a property fail to apply the required firebreak clearance, following proper notice, the County may elect to clear the firebreak vegetation and make the expense of the clearing a lien against the property upon which the work was accomplished.
- Hazardous Fire Area - The Hazardous Fire Areas consists mainly of wildlands, which are mountain and hill land in an uncultivated, more or less natural state, covered with timber, wood, brush, and grasslands. This area includes some urban influence and agricultural use, such as exists around Isabella Lake and the Kern River, Woody/Glennville, Tehachapi/ Cummings Valley, and Lebec/Frazier Park/Lake of the Woods.
- The wildlands provide prime habitats for deer, mountain lions, bears, kit foxes, quail, chucker, wild turkeys, and condors. They also harbor fifteen identified and important rare botanic communities and vegetation associations.
- The Kern County Hazardous Fire Area was established by an amendment to the Uniform Fire Code, Section 1.49H under Section 4016 of the Kern County Ordinance Code.
- The boundaries of the Hazardous Fire Area are determined and publicly announced before the start of each annual "fire season" and is normally the period from April 15 to December 1 of each year, except when the Fire Chief extends this period.
- The wildlands include valuable watersheds that must be preserved for receiving and passing water into surface streams and underground storage. Protection of the watersheds will prevent erosion and flood damages.

- For the protection of our wildlands we must consider all factors which will aid in fulfilling the policy stated in the California Environmental Quality Act, Public Resources Code Section 21000 et seq., to "create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations."
- In implementing their Fire Prevention Program, Fire Department personnel periodically inspect the areas around all buildings for accumulations of flammable material and closure of openings of vacant buildings.

Kern County Wildland Fire Management Plan (WFMP)

The WFMP documents the assessment of the wildland fire situation throughout the SRA within the County. It includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work with the local fire problem. The goal of the Plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones. The WFMP is referenced in this analysis; however, the goals set forth by this plan are not applicable to development of the AEWP.

Mojave Specific Plan

The easternmost portions of the AEWP site are within an area governed by the Mojave Specific Plan. Land use designations within the Mojave Specific Plan area are consistent with the Kern County General Plan. Applicable goals, objectives, and policies within the Mojave Specific Plan relevant to the area of wildland fire ecology include:

Chapter 9, Seismic and Safety Element

Goals

- Promote awareness of potential human-caused hazards.
- Ensure that new development does not create a burden on adequate levels of fire and law enforcement services.

Objectives

- Objective 9.3. Protect the community from human-caused hazards related to air and ground transportation, hazardous materials, and other human activities.
- Objective 9.4. Ensure that new development does not degrade fire and law enforcement service levels.

Policies

- Policy 9.1.1 (A-1, A-3, M-2). Safety measures required by the Uniform Building Code and the Kern County Seismic Safety Element during construction of new buildings are hereby incorporated by reference.
- Policy 9.4.3 (F-2). Ensure that street widths and clearance areas are sufficient to accommodate fire protection and emergency vehicles during land division review and site plan review.
- Policy 9.4.5 (L-1). Continue to enforce the Kern County Health, Fire and Building standards for new development and rehabilitation of existing structures.

Capital Improvement Plan (CIP)

The changing fiscal landscape in California during the past 30 years has steadily undercut the financial capacity of local governments to fund infrastructure. Faced with these trends, the County has adopted a policy of "growth pays its own way" through use of a public facilities mitigation program. The primary policy objective of this program is to ensure that new development pays the capital costs associated with growth.

In 2008, the County adopted a CIP that identifies the best current understanding of the public facilities that will be needed to accommodate new development anticipated through 2030. The CIP further identified appropriate existing facility demand standards to be used as a basis for estimating future facility needs and level of service. The adopted CIP includes a summary of proposed service levels for the included facilities and a conceptual list of planned projects, upon which the CIP was based. The scope of services includes: parks, libraries, sheriff (public protection and investigation), fire, animal control, public health, landfill/transfer stations, and general government. Roads and sewer costs and impacts are not part of this program.

Continued growth within the County and the associated impacts resulting from that growth have increased the demands to Countywide public services and have made it difficult to not only implement and fund many of those facilities identified within the CIP, but maintain existing public service demand standards as growth occurs. In short, despite the increase in property taxes generated as a result of the proposed AEWP and other similar projects within the County, public facility impacts are still underfunded and unable to maintain existing and adopted facility standards.

The purpose of the Public Facilities Mitigation Program is to identify impacts on public services and identify the monetary CEQA mitigation necessary to meet the facilities associated with that growth. The following categories have been identified to help determine which specific public needs are impacted by the proposed AEWP.

- Countywide Public Protection Facilities;
- Sheriff Patrol and Investigation Facilities;
- Library Facilities;
- Animal Control Facilities;
- Park Facilities;
- Fire Facilities;
- Waste Management Facilities;
- Public Health Facilities; and
- General government Facilities.

3.20.2.4 Other

North American Electric Reliability Corporation Standards

The NERC is a nonprofit corporation comprising 10 regional reliability councils. FERC oversees NERC in the U.S. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC, 2011). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region. The plan, which became effective on April 7, 2006, establishes requirements of the formal

transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway (NERC, 2006). The clearances identified must be no less than those set forth in the Institute of Electrical and Electronics Engineers Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (NERC, 2006).

3.21 Wildlife Resources

Discussion of biological resources has been divided into two parts for the purpose of this document. The first element of the discussion focuses on Vegetation Resources and is located in Sections 3.17 and 4.17 of this document. The second element of the discussion focuses on Wildlife Resources and is discussed in Sections 3.21 and 4.21.

This section describes the existing environmental setting, wildlife resources that are present or have the potential to occur within the Alta East Wind Project (AEWP) site, and state and federal jurisdictional areas that are present within the AEWP. The information and analysis that is presented in this section has been derived from published literature, federal and state databases, and site-specific investigations of the project area and adjacent locations, described as follows:

- *Biological Resources Report for the Alta East Wind Project in Kern County, California* (CH2MHILL, Inc. [CH2MHILL], 2010g);
- *Vegetation Mapping and General Wildlife Assessment for the Alta Wind Center, Sun Creek Subarea Project in Kern County, California* (CH2MHILL, 2009);
- Avian use studies conducted at the AEWP site, raptor nest inventories in the project site and a two-mile buffer, and golden eagle nest surveys in the project site and a ten-mile buffer conducted by Western EcoSystems Technology, Inc. (WEST) (WEST, 2010a, 2010b, 2010c, 2011a, and 2011b);
- Bat acoustic studies conducted at the AEWP site by WEST (WEST, 2010d, 2011c, and 2012);
- Bat roost surveys conducted at the AEWP site by WEST (EST, 2011d);
- Desert tortoise and burrowing owl focused surveys conducted by Sundance Biology, Inc. (Sundance), Phoenix Ecological Consulting (Phoenix), and Garcia and Associates (GANDA) (Sundance, 2009; Phoenix, 2010a and 2010b; GANDA, 2011c, 2011d, and 2011e);
- Mohave ground squirrel surveys conducted at the AEWP site and nearby projects by W. J. Vanherweg (Vanherweg, 2006, 2010, 2011a; and 2011b;
- Nest survey for Swainson's hawk conducted by CH2MHILL within five (5) miles of the AEWP site and along the transmission line route (CH2MHILL, 2011v and 2011w);
- Applicant responses to data requests (CH2MHILL, 2011h, 2011j, 2011r, and 2012c)
- The California Department of Fish and Game (CDFG) Special Animals List (CDFG, 2011b);
- The CDFG California Natural Diversity Database (CNDDB, 2011);
- Review of relevant literature on biological resources in and around the project area; and
- Review of maps and aerial photographs.

All AEWP biological reports and memoranda referenced in this section are included in Appendix D of this document.

3.21.1 Environmental Setting

The AEWP site is located in the western Mojave Desert, partially within the foothills of the Tehachapi Mountains. The region is characterized by rolling hills and desert flats, as well as the Tehachapi and Piute Mountains at the southern end of the Sierra Nevada. Many of the foothill and desert areas support operating wind farms. The region is located at the confluence of three (3) ecotones: the Sierra-Tehachapi-Mojave Ecotone, the Central Valley Ecotone, and the Antelope Valley Ecotone (see Figure 3.17-1 in Appendix A). As such, a variety of habitats occur in the general region, including various desert scrub communities (most commonly creosote bush and saltbush scrubs), Joshua tree and pinyon/juniper

woodlands, and conifer woodlands at higher elevations. Riparian habitats also occur in some areas, but are generally not widespread on the desert floor or foothill areas. Several areas have high biodiversity because of the region's location at the desert-mountain transition zone. The region contains at least four (4) endemic animals and 13 endemic plants. There are a number of disjunct localities where plants and animals range into the western Mojave Desert far from their primary distribution (BLM, 2005g).

The vicinity of the AEWP site is sparsely developed and rural. Land uses in and adjacent to the project area consist of open space with scattered residences, off-highway vehicle use, wind developments, and livestock grazing. Existing developments within and surrounding the AEWP area include rights-of-way (ROWs) for underground pipelines; underground portions of the Los Angeles Aqueduct; Southern California Edison electric transmission lines; Union Pacific Railroad siding, which is a short stretch of railroad track used to store rolling stock or enable trains on the same line to pass; and a Los Angeles Department of Water and Power electric transmission line easement. The Cameron Ridge segment of the Pacific Crest Trail (PCT) passes northwest of the project area, north of State Route (SR) 58, which bisects the AEWP site. Existing wind developments occur adjacent to the west side of the AEWP site, and additional wind developments have been approved adjacent to portions of the site to the north, east, and south. An active mine (undetermined ore) is located adjacent to the northwestern site boundary.

Of the 2,592 acres that comprise the AEWP site, 2,024 acres are on federal land administered by the Bureau of Land Management (BLM). Most of the AEWP site is designated by the BLM's California Desert Conservation Area (CDCA) Plan as Multiple-Use Class M (Moderate Use). This class provides for a wide variety or present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses, may cause. Smaller portions of the site are designated Multiple Use Class L (Limited Use), which protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished. There are 21 acres of unclassified public lands within the site. Unclassified lands are scattered and isolated parcels of public land in the CDCA, which have not been placed within multiple-use classes. These parcels are managed on a case-by-case basis, per the BLM Land Tenure Adjustment Element.

The AEWP is adjacent to the Middle Knob Area of Critical Environmental Concern (ACEC) to the northwest. This ACEC was designated to protect several sensitive species, including Kern buckwheat, flax-like monardella, and various raptors. Management of this area includes requirements for avoidance of all covered species of plants and animals, designation of vehicle routes of travel to ensure compatibility with the purposes of the ACEC and with the PCT, and a prohibition on new wind energy development on public lands (BLM, 2005g).

Elevations in the project area range between 3,000 and 4,300 feet above mean seal level. Elevation generally decreases from the west to the east, with the Tehachapi Mountains to the north, and the Horned Toad Hills within the western and central portions of the site. Narrow, steep-walled ephemeral drainages are common in the central portion of the site. Ephemeral water features on the site trend in a northwest to southeast direction. Cache Creek traverses the northern portion of the site, south of and roughly parallel to SR 58. Cache Creek is intermittent to ephemeral in the project area, and no perennial water sources or riparian vegetation occurs on site.

The majority of the AEWP site is comprised of desert scrub communities such as creosote bush scrub and brittlebush scrub, as well as California juniper woodland and Joshua tree woodland. Other vegetation communities include rabbitbrush scrub, California buckwheat and California buckwheat-saltbush scrub, cheesebush and cheesebush-bursage scrub, scalebroom scrub, and desert almond scrub. Disturbed and ruderal areas also occur. These vegetation communities are described in detail in Section 3.17 (Vegetation Resources).

3.21.1.1 Overview of Species Known to Occur in Region

The Mojave Desert is known as the "high desert" because large portions lie at elevations between 2,500 and 4,000 feet. In the western Mojave Desert, temperatures occasionally fall below freezing in the winter, but regularly exceed 100 degrees Fahrenheit in the summer months. The western Mojave Desert lies within the rain shadow of the Sierra Nevada and Tehachapi Mountains to the north and west, and the San Gabriel and San Bernardino Mountains to the south. These ranges capture rainfall from storms originating over the Pacific Ocean and prevent all but the larger storms from reaching the desert. Summer thunderstorms are not as common here as in the eastern Mojave and Sonoran Deserts, although infrequent storms can cause flooding, playa filling, and redirection of stream flow on alluvial fans (BLM, 2005g).

Several sensitive species of wildlife occur in the region, and have been documented in the area. The federally and State-listed threatened desert tortoise (*Gopherus agassizii*) ranges widely across the Mojave Desert; and a low-density population is known to occur in the region. The golden eagle (*Aquila chrysaetos*), which is fully protected in California and is covered under the Bald and Golden Eagle Protection Act, breeds in the region. A number of other special-status species also occur in this desert-mountain transition zone.

Common species occurring in western Mojave Desert include mammals such as California ground squirrel (*Spermophilus beecheyi*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), desert woodrat (*Neotoma lepida*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*). In addition to these species, the area supports wide-ranging mammals, including bobcat (*Lynx rufus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). The presence of nearby rock outcrops, the Oak Creek and Cache Creek drainage systems, and mine adits in the region also provide suitable habitat for a variety of bat species. A number of birds migrate through the region, and several resident species are present year-round. These include dark-eyed junco (*Junco hyemalis*), sage sparrow (*Amphispiza belli*), white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Dendroica coronata*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), western scrub jay (*Aphelocoma californica*), spotted towhee (*Pipilo maculates*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), and western tanager (*Piranga ludoviciana*), among others. A breeding population of prairie falcons (*Falco mexicanus*), a CDFG Watch List Species, also occurs in the region.

A diverse assemblage of reptiles occurs in the region. Some of the species that occur here include desert iguana (*Dipsosaurus dorsalis*), desert horned lizard (*Phrynosoma platyrhinos*), granite spiny lizard (*Sceloporus orcutti*), common side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis catenifer*), western fence lizard (*S. occidentalis*), western whiptail (*Aspidoscelis tigris*), desert night lizard (*Xantusia vigilis*), Mojave rattlesnake (*Crotalus scutulatus*), common kingsnake (*Lampropeltis getula*), and coachwhip (*Masticophis flagellum*). Amphibians are not as widespread in the region as they often require a source of standing or flowing water to complete their life cycle, and suitable habitats are rare in the arid desert and foothills of eastern Kern County. However, some terrestrial species can survive in drier areas by remaining in moist environments found beneath leaf litter and fallen logs, or by burrowing into the soil. Some of the common amphibians that occur in the region include California toad (*Anaxyrus boreas*) and Sierra treefrog (*Pseudacris sierra*). Canyons and slopes at higher elevations in the Tehachapi and Piute Mountains support potential habitat for the State-listed Tehachapi slender salamander (*Batrachoseps stebbinsi*) and the CDFG Species of Special Concern yellow-blotched salamander (*Ensatina eschscholtzii*).

Like in all ecological systems, invertebrates occurring in the region play a crucial role in a number of biological processes. They serve as the primary or secondary food source for a variety of bird, reptile, and mammal predators; they provide important pollination vectors for numerous plant species; they act as efficient components in controlling pest populations; and, they support the natural maintenance of an area

by consuming detritus and contributing to necessary soil nutrients. Invertebrates in the region are represented by a composition of species that commonly occur in southern California. These include representatives of various insect orders, such as Orthoptera (grasshoppers, crickets), Odonata (dragonflies, damselflies), Hemiptera (true bugs), Coleoptera (beetles), Diptera (flies), Hymenoptera (bees, wasps, ants), and Lepidoptera (butterflies, moths), among other. Numerous species of arachnids (spiders and scorpions) also occur. This region likely supports various gastropods, including whitefir shoulderband (*Helminthoglypta concolor*) and Kern shoulderband (*H. callistoderma*) which are considered special animals by CDFG and various local agencies. Each of these species has been recorded in Kern County and is expected to be widely distributed in multiple habitats.

3.21.1.2 Connectivity and Migration Corridors

Movement and dispersal between habitat areas is essential for gene flow, maintenance of populations, migration for some species, and maintenance of biodiversity. Linkages and corridors facilitate regional animal movement and are generally centered around waterways, riparian corridors, flood control channels, and contiguous upland habitat. Drainages often serve as movement corridors because wildlife can move easily through these areas, and fresh water is available; however, in arid desert environments, upland areas can be just as important to wildlife movement. Corridors also offer wildlife unobstructed terrain for foraging and for dispersal of young individuals. Ridgelines that occur throughout the region, to the northwest of the project site, may also serve as movement corridors.

Habitat linkages are contiguous areas of open space that connect two (2) larger habitat areas. Linkages provide for both diffusion and dispersal for a variety of species within the landscape. In addition, linkages can serve as primary habitat for some smaller species (USACE and CDFG, 2009). Corridors are linear linkages between two (2) or more habitat patches. Corridors provide for movement and dispersal, but do not necessarily include habitat capable of supporting all life history requirements of a species (USACE and CDFG, 2009).

In November 2000, a conference was held at the San Diego Zoo to address habitat corridors and linkages on a State-wide level. Participants included the California Wilderness Coalition, The Nature Conservancy, California State Parks, United States Geological Survey, the San Diego Zoo, the Center for Reproduction of Endangered Species, and others. Agency staff, conservationists, and university scientists worked together to delineate California's most important linkages and identify threats and restoration potential (Penrod et al., 2001). The AEWP area lies within and near the landscape linkages identified as the Southern Sierra Checkerboard and the San Gabriels–Tehachapi missing link. The Southern Sierra Checkerboard is considered an important connection between the flora and fauna of the Sierra Nevada and the Mojave & Sonoran Deserts ecoregions. This linkage was identified as an important connection for large animals such as deer, bear, mountain lion, bobcat, etc. (Penrod et al., 2001). A "missing link" was defined as a highly impacted area currently providing limited to no connectivity function due to factors such as roadways, intervening development, etc. However, based on location, the missing link was determined to be critical to restore connectivity function (Penrod et al., 2001). The San Gabriels–Tehachapi missing link was identified as a general wildlife corridor, which crosses the Antelope Valley to connect the San Gabriel and Tehachapi mountains ranges. The AEWP area lies within this missing link.

Following the conference on California's missing linkages, the conservation planning organization South Coast Wildlands gathered a group of agencies, conservation groups, and university researchers to focus conservation efforts on the South Coast Ecoregion, identified as the State's most imperiled region (SCW, 2008). This project was named the South Coast Missing Linkages Initiative, and partners include the National Park Service, the California Resources Agency, the United States Forest Service, California State Parks, the Mountain Lion Foundation, The Wildlands Conservancy, San Diego State University Field Stations Program, the Conservation Biology Institute, The Nature Conservancy, Resources Legacy Fund Foundation, and the Department of Defense, among others. The goal of this initiative is "to provide

the full range of native plants and animals with adequate landscape connections to withstand both natural and unnatural impacts such as fire, flood, growth and climate change" (SCW, 2008).

The AEWP area is situated along the southeastern side of the Tehachapi Connection, identified by the South Coast Missing Linkages Initiative as 1 of 15 major landscape linkages essential to a functioning wildland network both within the South Coast Ecoregion and between this ecoregion and neighboring ones. The Tehachapi Connection was recognized as perhaps the most important linkage within the ecoregion, as it is the only wildland that connects two (2) major mountain systems – the Sierra Nevada and the San Emigdio Mountains (Penrod et al., 2003). The Connection follows the Tehachapi Mountains, which provide habitat and connectivity for mountain species as well as species from the San Joaquin Valley and the Mojave Desert. The Tehachapi Mountains are rich in biodiversity as they lie at the confluence of five (5) major biogeographic regions.

Due to its location, the AEWP area likely provides connectivity for a number of terrestrial and avian species, both resident and migratory. Drainages and ridgelines occurring in the region are likely to function as movement corridors, and upland habitat is expected to provide vital linkages for many terrestrial species.

No known bird migration routes cross the AEWP area. Although the Pacific Flyway, a large migration route used by numerous bird species that pass throughout large portions of California, is within the vicinity of the project area, bird watching records in the area do not indicate focused or well-defined migration patterns in the immediate area, but rather broad-front, scattered migration. The Butterbredt Springs Wildlife Sanctuary, an avian migratory stopover, is considered an avian "hotspot" area and is located 18 miles to the northeast. A known migratory bird trap, also referred to as a vagrant migrant trap, is located 26 miles to the northeast of the AEWP area at Galileo Hill near California City. Many species of migratory bird vagrants, birds that wander off their normal fall and spring migratory routes, are observed in the area. Large flocks of house finches (up to 20,000) have also been observed near California City. The Piute Ponds on Edwards Air Force Base, 22 miles south of the AEWP area, are also important habitats and resting areas for various migrating birds. The AEWP site is not expected to attract large numbers of birds transiting to these "hotspot" areas, as the AEWP has limited habitat available to serve as refuge for migrating species, and habitats such as riparian habitat and areas with perennial water flow are absent.

A known turkey vulture migration route is located through the Kern River Valley over 35 miles north of the AEWP. The largest turkey vulture migration in the United States has been recorded in the Kern River Valley near Kelso Creek, in Kern County, with over 27,000 vultures counted during 46 days in 1994 (Rowe and Gallion, 1996). This fall migration route passes through the South Fork Kern River and provides roosting sites at riparian habitats for the vultures before passing over the Mojave Desert to the nearest documented roosting site along the Mojave River near Victorville, California. Over 12,000 turkey vultures have been counted by the Mojave Desert Raptor Watch near Victorville. Vultures migrating down the west side of the Sierra Nevada roost in the South Fork Kern River before continuing on to the Mojave River. From the Kern River Valley, the most direct route to the Mojave Desert is southeast along Kelso Creek (Rowe and Gallion, 1996) through Kelso Valley. The southern end of Kelso Valley is 16 miles north of the AEWP. This route was also found to be used by other raptors as well (Rowe and Gallion, 1996). Data from two (2) full years of fixed-point avian use surveys conducted on site on a weekly basis do not indicate that turkey vultures migrate across the AEWP area in large numbers. No vultures were recorded on site during the fall migration period in either study. In 2009/2010, 87 turkey vultures in nine (9) groups were recorded during the spring, none in the summer, and 21 turkey vultures in two (2) groups were recorded in the winter. In 2010/2011, the only turkey vultures recorded on site were three (3) groups totaling 22 birds in the spring. No turkey vultures were recorded at any other time during this study (WEST, 2010c and 2011b, located in Appendix D). Avian use surveys in the AEWP area are discussed in Section 3.21.1.1 below.

Results of acoustic bat surveys conducted for the AEWP to date do not suggest a focused bat migration route exists on the AEWP site, as bat activity was recorded year-round at relatively low levels. A total of 217 bat passes were detected at two (2) locations in the central and eastern portions of the AEWP site during 1192 detector-nights during the 2009/2010 study period. During the period December 13, 2010 to April 11, 2011 a total of 95 bat passes were detected during 233 detector-nights at one (1) location in the southwestern project area. Variation in bat activity was evident during the year, with most activity concentrated in late October and late April, likely reflecting movement of bats through the area during fall and spring migration. However, the overall amounts of bat activity on site, even during the fall and spring migration periods, was similar to or lower than other projects studied in the region (WEST, 2010d and 2011c). Bat acoustical surveys in the AEWP area are discussed in Section 3.21.1.1 below.

3.21.1.3 Special-Status Animal Species

Special-status animal species are those that:

- Have been designated as either threatened or endangered by the United States Fish and Wildlife Service (USFWS), and are protected under the federal Endangered Species Act (ESA); or
- Have been designated as either threatened or endangered by CDFG, and are protected under the California Endangered Species Act (CESA); or
- Are proposed for listing under these same acts; or
- Protected under the federal Bald and Golden Eagle Protection Act; or
- Protected under the federal Migratory Bird Treaty Act; or
- Are considered Species of Special Concern by CDFG; or
- Are protected by the California State Fish and Game Code, Sections 460, 3511, 4000, 4700, 5050, or 5515; or
- Are designated as sensitive species by the BLM (BLM, 2010e; CDFG, 2011b); or
- Are of express concern to resource/regulatory agencies, or local jurisdictions.

Table 3.21-1 lists special-status animal species known to occur in the AEWP site based on the results of project surveys, or whose potential to occur in the AEWP site was considered based on a CNDDB records search, results of surveys in nearby project areas, a review of known range and distribution maps, agency input, and BLM species lists (CNDDB, 2011; CDFG, 2011b). Data collection methodology and specific descriptions of results are described in Section 3.21.2.

A variety of special-status species have the potential to occur at the AEWP. Many of these special-status species have broad distributions and ranges and could potentially occur in suitable habitats across the entire project area. The potential for occurrence was ranked based on the following criteria:

- **Present**: Taxon (species or subspecies) was observed within the AEWP area during surveys or has been recently documented in the AEWP area.
- **High**: Both a documented record exists of the taxon within the AEWP area or immediate vicinity (five [5] miles) and the environmental conditions (including soil type and vegetation communities) associated with taxon presence occur within the AEWP area; however, this taxon was not detected during AEWP-specific biological surveys.
- **Moderate**: Either a documented record exists of the taxon within the immediate vicinity of the AEWP area (five [5] miles) or the environmental conditions (including soil type and vegetation communities) associated with taxon presence occur within the AEWP area and the AEWP area is within the known distribution for this taxon.

- **Low**: No records exist of the taxon occurring within the AEWP study area or immediate vicinity (five [5] miles), and/or the environmental conditions (including soil type, vegetation, and elevation factors) associated with taxon presence are marginal within the AEWP area.
- **Not Likely to Occur**: No known records exist and the AEWP area lacks suitable habitat requirements (including soil, vegetation, and elevation factors).

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
		Invertebrates	
Helminthoglypta callistoderma Kern shoulderband	Federal – None State – Special Animal BLM – None	Information is limited; however, this species is assumed to be widespread throughout various habitats in the County.	**Moderate**. The AEWP area likely supports suitable habitat and is within the known geographic distribution for this species.
Helminthoglypta concolor Whitefir shoulderband	Federal – None State – Special Animal BLM – None	Information is limited; however, this species is assumed to be widespread throughout various habitats in the County.	**Moderate**. The AEWP area likely supports suitable habitat and is within the known geographic distribution for this species.
		Amphibians	
Batrachoseps stebbinsi Tehachapi slender salamander	Federal – None State – Threatened BLM – Sensitive	Inhabits moist canyons and ravines in oak and mixed woodlands. Found under rocks, logs, bark, and other debris in moist areas, especially in areas with much leaf litter, often near talus slopes.	**Not Likely to Occur**. Suitable habitat is not present in the AEWP area.
Ensatina eschscholtzii croceator Yellow-blotched salamander	Federal – None State – SSC BLM – Sensitive	Litter and debris of oak woodland, pine-dominated open woodland, and fir-dominated open forest.	**Not Likely to Occur**. Suitable habitat is not present in the AEWP area.
		Reptiles	
Anniella pulchra pulchra Silvery legless lizard	Federal – None State – SSC BLM – None	A burrowing species associated with sandy or loose loamy soils with sparse vegetation. Chaparral, pine-oak woodland, washes, and streamside terraces are utilized. Also occurs in desert scrub. Elevated soil moisture is required.	**Moderate**. This species was recently (2010) detected for the North Sky River Wind Energy Project, 12 miles north of the AEWP area. The AEWP area supports suitable habitat, particularly associated with sandy ephemeral drainages.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Gopherus agassizii Desert tortoise	Federal – Threatened State – Threatened BLM – None	Friable soils in gravelly desert washes, canyon bottoms, and rocky hillsides in habitats including the creosote, shadscale, and Joshua tree/Mohave yucca series of Mojave Desert scrub, the lower Colorado River valley subdivision of Sonoran Desert scrub, and semi-arid grasslands. Prefers habitats where diversity of perennial species is relatively high and production of ephemerals is high.	**Present.** Five (5) individuals and numerous sign (burrows, scat, tracks, etc.) were recorded during protocol surveys of the AEWP site in 2009. Additional inactive burrows and a carcass were recorded during 2010 and 2011 protocol surveys. One (1) individual was observed incidentally within the AEWP area during 2009/2010 avian use studies. One (1) adult male, 1 carcass, scat, tracks, and 5 burrows were detected during burrowing owl surveys in 2010, and 3 live tortoises in burrows and 1 inactive burrow were recorded in the project survey area during 2011 burrowing owl surveys. This species was recently (2009) detected during surveys for the Alta–Oak Creek Mojave Project, 5 miles southwest of the AEWP. Suitable habitat is abundant throughout the project area and along the transmission line route.
Phrynosoma blainvillii Coast horned lizard	Federal – None State – SSC BLM – Sensitive	Loose, fine soils in a variety of habitats including coastal sage scrub, chaparral, grassland, coniferous forest, oak woodland, riparian woodland, and the margins of higher-elevation deserts in juniper desert chaparral. Abundant prey base of native ants and other insects required.	**Present.** This species was documented within the AEWP in 2010, and has recently been detected at numerous nearby wind energy developments, including the Morgan Hills and North Sky River Wind Energy Projects. Suitable habitat occurs primarily in the northern and central portions of the AEWP site.
Birds			
Accipiter cooperii Cooper's hawk (nesting)	Federal – None State – Watch List BLM – None	Nests in woodlands and sometimes suburban settings if mature trees are present. Broken woodlands or near habitat edges with the exception of their desert occurrences; seldom found in areas that do not have dense, or patchy, wooded areas. Occur in dense stands of live oak, riparian deciduous or other forest habitats near water.	**Present.** This species was observed within the AEWP area during avian use studies.
Accipiter gentilis Northern goshawk (nesting)	Federal – None State – SSC BLM – Sensitive	Prefers dense, mature coniferous forests but may winter in pinyon-juniper woodlands.	**Low.** No suitable habitat occurs on site, but this species is known to migrate through the Kelso Valley.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Accipiter striatus Sharp-shinned hawk (nesting)	Federal – None State – Watch List BLM – None	Nests in conifer and riparian forests, preferably on north-facing slopes near water. Forages in many types of habitats in winter and during migration.	**Present.** This species was observed within the AEWP area during avian use studies.
Agelaius tricolor Tricolored blackbird (nesting colony)	Federal – BCC State – SSC BLM – Sensitive	Near fresh water; wetlands with tall, dense cattails; thickets of willow, blackberry, wild rose and other tall vegetation; in grassland and cropland habitats, including agricultural areas; and in tall vegetation near wetlands.	**Not Likely to Occur.** No suitable nesting or foraging habitat occurs on or adjacent to the AEWP.
Ammodramus savannarum Grasshopper sparrow (nesting)	Federal – None State – SSC BLM – None	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches.	**Moderate.** The AEWP area is located within the known geographic range for this species and limited habitat occurs on site.
Aquila chrysaetos Golden eagle (nesting and wintering)	Federal – BCC, BAGEPA State – FP, Watch List BLM – Sensitive	Rolling hills, mountains, sage-juniper flats and deserts, secluded cliffs with overhanging ledges and large trees for nesting.	**Present.** Detected during avian use studies and burrowing owl/desert tortoise surveys on site. This species may forage throughout the entire AEWP area and suitable nesting habitat occurs along ridgelines in the Tehachapi Mountains north of the AEWP. The nearest active nests (in 2011) are located 3.0 miles to the northwest, 3.8 miles to the north, and 6.8 miles to the north of the AEWP. Ten inactive golden eagle nests were identified within the 10-mile nest survey buffer and 3 additional inactive nests were identified just outside the 10-mile buffer. The closest of these inactive golden eagle nests is 1.2 miles to the northwest of the AEWP.
Asio flammeus Short-eared owl (nesting)	Federal – None State – SSC BLM – None	Winters in Central Valley, western Sierra Nevada foothills, and along the State coastline in open areas with few trees, grasslands, prairies, dunes, meadows, irrigated lands and wetlands.	**Moderate.** The AEWP area supports suitable habitat and is within the known geographic distribution for this species.
Asio otus Long-eared owl (nesting)	Federal – None State – SSC BLM – None	Uncommon winter visitor to Central Valley and Southern California deserts in riparian habitat, live oak thickets and other dense strands of trees.	**Moderate.** This species was recently (2009) detected during surveys for the Alta–Oak Creek Mojave Project 5 miles southwest of the AEWP area. Although suitable nesting habitat is absent, this species may forage throughout the entire AEWP area.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Athene cunicularia Burrowing owl (burrowing sites and some wintering sites)	Federal – BCC State – SSC BLM – Sensitive	Open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals such as ground squirrels.	**Present.** One (1) individual was observed within the AEWP area during 2009/2010 avian use studies. Protocol surveys in 2010 and 2011 were positive for burrowing owl sign, and 2 active burrows were recorded during desert tortoise surveys in 2011.
Buteo regalis Ferruginous hawk (wintering)	Federal – BCC State – Watch List BLM – None	Winters at lower elevations and open grasslands, agricultural areas in southwestern California, sagebrush flats, desert scrub, low foothills surrounding valleys, and the edges of pinyon-juniper habitats.	**Low.** The species is documented to occur to the south of the project area during spring migration and the nesting season; however, no nests are known to occur within 5 miles of the AEWP. The species may occasionally migrate through the area, but is not expected to nest in or near the AEWP.
Buteo swainsoni Swainson's hawk (nesting)	Federal – BCC State – Threatened BLM – None	Stands with few trees, juniper-sage flats, riparian habitat, and oak savannah. Forages in adjacent grasslands and agricultural fields and pastures.	**Present.** This species was observed within the AEWP area during avian use studies. The entire project area supports suitable foraging habitat. Potential nesting habitat occurs over much of the site, including Joshua tree woodlands.
Chaetura vauxi Vaux's swift (nesting)	Federal – None State – SSC BLM – None	Common migrant throughout California but breeds in Douglas fir and redwood habitats with large, hollow trees and snags in the Pacific northwest and northern California.	**Present.** This species was observed within the AEWP area during avian use studies.
Charadrius montanus Mountain plover (wintering)	Federal – Proposed Threatened, BCC State – SSC BLM – Sensitive	Short open grasslands, plowed fields, open sagebrush areas and foothill valleys; individuals winter from north-central California to Mexico border, primarily in Sacra-mento, San Joaquin, and Imperial Valleys.	**Moderate.** Wintering individuals were reported annually in the Antelope Valley and western Mojave Desert between 1979 and 2004. The AEWP area supports suitable habitat and is within the known geographic distribution for this species.
Circus cyaneus Northern harrier (nesting)	Federal – None State – SSC BLM – None	Nests on the ground and forages for small mammals in grasslands, pastures, meadows, open rangeland, desert sinks, fresh and saltwater wetlands, and wooded areas.	**Present.** This species was observed within the AEWP area during avian use studies. The entire project area supports suitable foraging habitat.
Cypseloides niger Black swift (nesting)	Federal – BCC State – SSC BLM – None	Flies over a variety of habitats during migration, summer resident in mountain foothill canyons.	**Moderate.** This species was recently (2008) identified as a migrant during surveys for the Pacific Wind Energy Project 12 miles southwest of the AEWP area. May migrate through the project area.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Elanus leucurus White-tailed kite (nesting)	Federal – None State – FP BLM – None	Herbaceous and open states of most habitats, including grasslands and savannas, often found in agricultural areas. Trees with dense canopies are used for cover and nesting.	**Moderate.** The AEWP area supports suitable habitat and is within the known geographic distribution for this species.
Eremophila alpestris actia California horned lark	Federal – None State – Watch List BLM – None	Open habitats, forages in bare dirt in short and/or sparse grassland and areas of scattered shrubs.	**Present.** This species was observed within the AEWP area during avian use studies. The entire project area supports suitable nesting and foraging habitat.
Falco columbarius Merlin (wintering)	Federal – None State – Watch List BLM – None	Open habitat at low elevations. Rare winter migrant in the Mojave Desert. Riparian environments, coastlines, open grasslands, savannahs, woodlands, lakes, and wetlands.	**High.** This species does not breed in California; however, it was recently (2008 and 2009) identified as a winter resident during surveys for the Pacific Wind Energy Project and the Alta–Oak Creek Mojave Project, 14 miles and 5 miles southwest of the AEWP area, respectively. The AEWP area supports potential wintering habitat for this species.
Falco mexicanus Prairie falcon (nesting)	Federal – BCC State – Watch List BLM – None	Annual grassland to alpine meadows, but is typically found in perennial grasslands, savannahs, rangeland, some agricultural fields and desert scrub areas.	**Present.** This species was observed within the AEWP area during avian use studies and burrowing owl surveys. The entire project area supports suitable foraging habitat, and nesting habitat is present in the Tehachapi Mountains to the north of the AEWP.
Falco peregrinus anatum American peregrine falcon (nesting)	Federal – BCC, Delisted State – FP, Delisted BLM – None	Nests on cliff ledges and forages where there are large concentrations of birds.	**Present.** This species was observed within the AEWP area during avian use studies. The entire project area supports suitable foraging habitat.
Gymnogyps californianus California condor	Federal – Endangered State – Endangered; FP BLM – None	Requires vast expanses of open savannas, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Nests in clefts in rocky walls of deep canyons. Roosts on cliffs, in large trees, and on snags. Can forage up to 100 miles from roost/nest.	**High.** One (1) USFWS GPS telemetry record exists 4.3 miles northeast of the AEWP and a historic location was recorded 2.3 mile west of the AEWP. Potential foraging habitat occurs primarily in the central and northern portions of the AEWP site. Potential roosting habitat is absent.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Lanius ludovicianus Loggerhead shrike (nesting)	Federal – BCC State – SSC BLM – None	Open habitats utilizing shrubs, trees, posts, fences, and low utility lines for perches, open foothill and valley woodlands with some canopy cover and adequate roosting and foraging perches, forages in edge habitats, and in particular prefers shrubs adjacent to grasslands.	**Present.** This species was observed within the AEWP area during avian use studies, desert tortoise surveys, and burrowing owl surveys. The entire project area supports suitable nesting and foraging habitat.
Myiarchus tyrannulus Brown-crested flycatcher (nesting)	Federal – None State – Watch List BLM – None	Common in desert riparian habitat along the Colorado and Mojave Rivers and in desert oases. Foraging occurs in desert scrub and plantings of salt cedar.	**High.** This species was recently (2009 and 2010) during surveys for the Alta–Oak Creek Mojave Project and North Sky River Wind Energy Project, 5 miles southwest and 12 miles north, respectively. The AEWP area supports potential foraging habitat.
Numenius americanus Long-billed curlew (nesting)	Federal – BCC State – Watch List BLM – None	Breeds in wet meadow habitat; winter visitor along most of California coast and in Central and Imperial Valley; large coastal estuaries, wetlands; agricultural fields.	**Not Likely to Occur.** No suitable wintering habitat occurs on or adjacent to the AEWP.
Pandion haliaetus Osprey (nesting)	Federal – None State – Watch List BLM – None	Breeds in variety of habitats with shallow water and large fish, including boreal forest ponds, desert salt-flat lagoons, temperate lakes, and tropical coasts. Winters along large bodies of water containing fish.	**Present.** This species was observed as a migrant within the AEWP area during avian use studies. No suitable nesting or foraging habitat occurs.
Pelecanus erythrorhynchos American white pelican (nesting colony)	Federal – None State – SSC BLM – None	In California, breeds primarily in the Klamath Basin. Forages in shallow inland waters such as in marshes and along lake or river edges. Wintering birds also forage in shallow coastal marine habitats.	**High.** This species was identified as a migrant on nearby projects in recent years (2009, 2010); however, the AEWP area does not support suitable nesting or foraging habitat. This species is known to migrate through the region.
Toxostoma bendirei Bendire's thrasher	Federal – BCC State – SSC BLM – Sensitive	Species breeds in Mojave desert scrub with Joshua Tree, Spanish Bayonet, Mojave Yucca, cholla cacti, or other succulents. They selectively occupy areas with high density and cover of these species.	**Moderate.** The AEWP area supports suitable habitat and is within the known geographic range for this species.
Toxostoma lecontei Le Conte's thrasher	Federal – BCC State – SSC BLM – None	Open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; Joshua tree habitat with scattered shrubs.	**Present.** This species was observed within the AEWP area during avian use studies. The entire project area supports suitable nesting and foraging habitat.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Vireo vicinior Gray vireo (nesting)	Federal – BCC State – SSC BLM – Sensitive	Inhabits arid pinyon-juniper, juniper, chamise-redshank chaparral in mountains of southern California; breeds in shrub-covered slopes with sparse to moderate cover and scattered trees.	**Moderate.** This species was recently (2009 and 2010/2011) identified during surveys for the Pacific Wind Energy Project and North Sky River Wind Energy Project, 14 miles southwest and 12 miles north of the AEWP area, respectively. The AEWP area supports suitable habitat; however, the known geographic breeding range for this species does not include Kern County.
		Mammals	
Antrozous pallidus Pallid bat	Federal – None State – SSC BLM – Sensitive	Grasslands, shrub lands, wood-lands, and forests from sea level up through mixed conifer forests. Roosts in rock crevices, trees, bridges, and buildings, but also uses crevices and cavities in caves and mines.	**High.** Low-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently (2006, 2007, and 2008) detected during surveys for the Alta–Oak Creek Mojave and Pacific Wind Energy Projects, 5 and 14 miles southwest of the AEWP area, respectively. Suitable foraging and roosting habitat, including rocky outcrops, cliff edges, and mines, occurs throughout the AEWP and adjacent areas.
Bassariscus astutus Ringtail	Federal – None State – FP BLM – None	Occurs primarily in and adjacent to riparian habitats, but also known from forest and shrub habitats at low to mid elevations.	**Low.** Riparian habitats typically associated with this species do not occur on or near the AEWP site; however, shrub habitats on site may provide marginal habitat and this species is known from the region.
Corynorhinus townsendii Townsend's big-eared bat	Federal – None State – SSC BLM – Sensitive	Found in most habitats except alpine and subalpine habitats; most abundant in mesic habitats. Primarily roosts in caves and abandoned mines, but may roost in buildings, bridges, rock crevices, and hollow trees in many habitat types.	**High.** Low-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently (2009) identified during surveys for the North Sky River Wind Energy Project, 12 miles north of the AEWP area. Suitable foraging and roosting habitat, including rocky outcrops, cliff edges, and mines, occurs throughout the AEWP and adjacent areas.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Euderma maculatum Spotted bat	Federal – None State – SSC BLM – Sensitive	Foothills, mountainous regions, and deserts of southern California in arid grasslands and along washes. Roosts in cliffs and mixed conifers.	**Moderate.** This species was recently (2008) detected during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP. Suitable foraging and roosting habitat, including rocky outcrops and cliff edges, occurs in and near the project area.
Eumops perotis californicus Western mastiff bat	Federal – None State – SSC BLM – Sensitive	Open, semi-arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban areas. Crevices in cliff faces, high buildings, trees and tunnels are used for cover and roosting.	**Moderate.** This species was recently (2009) identified during surveys for the North Sky River Wind Energy Project, 12 miles north of the AEWP area. Suitable foraging and roosting habitat, including rocky outcrops and cliff edges, occurs throughout the AEWP and adjacent areas.
Lasiurus blossevillii Western red bat	Federal – None State – SSC BLM – None	Primarily roosts in mature riparian forest but also found in upland forests, woodlands, and orchards.	**Moderate.** This species was recently (2006-2007) identified during surveys for the Alta–Oak Creek Mojave Project, 5 miles southwest of the AEWP area. May forage on site, but potential roosting habitat does not occur on or in the immediate vicinity of the AEWP.
Lasiurus xanthinus Western yellow bat	Federal – None State – SSC BLM – None	Associated with dry, thorny vegetation on the Mexican Plateau, and are found in desert regions of the southwestern United States, where they show a particular association with palms and other desert riparian habitats. Roosts in trees.	**Low.** The AEWP area is outside of the current known range of this species in California, but this species may be increasing in range and abundance in the U.S. Suitable habitats within the project area include the various desert scrub communities.
Macrotus californicus California leaf-nosed bat	Federal – None State – SSC BLM – Sensitive	Desert riparian, wash, desert and alkali scrub 1,968 – 4,265 feet. Roosts in rocky terrain with mines and caves near flats and washes.	**Low.** The AEWP area supports suitable habitat. However, this species' current range in California appears to be restricted to the Colorado River Basin and the eastern desert mountain ranges south of Death Valley.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Myotis ciliolabrum Western small-footed myotis	Federal – None State – None BLM – Sensitive	Inhabits a wide variety of habitats, primarily in relatively arid wooded and brushy uplands near water. Roosts in caves, buildings, mines, crevices, and occasionally under bridges and under bark	**High.** High-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently identified at the Morgan Hills Wind Energy Project, 9 miles southwest of the AEWP. Species is common in arid uplands. Potential suitable habitat in the project area may include mines and rocky outcrops and cliff edges as well as Joshua tree and California juniper woodlands.
Myotis evotis Long-eared myotis	Federal – None State – None BLM – Sensitive	Feeds along habitat edges, in open habitats, and over water. Roosts in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts.	**High.** High-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently identified at the Morgan Hills Wind Energy Project, 9 miles southwest of the AEWP. Potential suitable habitat in the project area may include mines as well as Joshua tree and California juniper woodlands.
Myotis thysanodes Fringed myotis	Federal – None State – None BLM – Sensitive	Uses open habitats, early successional stages, streams, lakes, and ponds as foraging areas. Roosts in caves, mines, buildings, and crevices.	**High.** Low-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently identified at the Morgan Hills Wind Energy Project and the North Sky River Wind Energy Project, 9 miles southwest and 12 miles north of the of the AEWP, respectively.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Myotis yumanensis Yuma myotis	Federal – None State – None BLM – Sensitive	Inhabits variety of open habitats, including woodlands, in close proximity to water sources. Roosts in buildings, mines, caves, or crevices, abandoned swallow nests and under bridges.	**High.** High-frequency calls typical of this species were recorded during recent bat surveys in the AEWP area; however, positive species-specific identification is difficult due to intraspecific bat call variability. This species was recently identified at the Morgan Hills Wind Energy Project and the North Sky River Wind Energy Project, 9 miles southwest and 12 miles north of the of the AEWP, respectively. Potential suitable habitat in the project area may include mines and rocky outcrops and cliff edges.
Nyctinomops femorosaccus Pocketed free-tailed bat	Federal – None State – SSC BLM – None	Prefers caves and crevices along rocky cliffs in semi-arid desert lands, but has also been known to roost in buildings.	**Low.** Although this species was recently (2008) identified during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP area, it is likely that the individual detected may have been traveling through the area and not locally foraging. The record represents an extra-limital range extension for this species. It is possible that the detection could have also been big-free tailed bat, described below.
Nyctinomops macrotis Big free-tailed bat	Federal – None State – SSC BLM – None	Prefers pinyon-juniper regions of arid regions; associated with high cliffs and rocky outcrops, where it roosts in crevices.	**Low.** This species was recently (2008) detected during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP area. As this species is only primarily known from San Diego County, the individuals identified during these surveys were considered vagrants.
Onychomys torridus ramona Southern grasshopper mouse	Federal – None State – SSC BLM – None	Arid desert habitats of Mojave Desert in alkali desert scrub, sagebrush and bitterbrush communities along washes and riparian habitats.	**Moderate.** This species (not to level of subspecies; positive identification requires genetic analysis) was recently (2008) identified during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP area. The AEWP area supports suitable habitat and is within the known geographic range of the subspecies.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Onychomys torridus tularensis Tulare grasshopper mouse	Federal – None State – SSC BLM – Sensitive	Hot, arid valleys and scrub deserts, in coastal scrub, mixed chaparral, sagebrush, low sage, and bitterbrush.	**Moderate.** This species (not to level of subspecies; positive identification requires genetic analysis) was recently (2008) identified during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP area. The majority of the AEWP area supports suitable habitat for southern grasshopper mouse, but may be outside of the range of the Tulare grasshopper mouse.
Perognathus alticolus inexpectatus Tehachapi pocket mouse	Federal – None State – SSC BLM – None	Occurs in a diversity of habitats, including Joshua tree woodland, pinyon-juniper woodland, oak savanna, and nonnative grasslands. Burrows in friable, sandy soil.	**High.** Most of the AEWP area supports suitable habitat and the nearest known location was reported in 2001 from Cameron Creek, 3 miles west of the AEWP area. In 1980, this species was recorded at Sand Canyon on a knoll just north of SR 58 and west of Cache Creek; this location is 5 miles west of the northern portion of the AEWP area.
Perognathus inornatus inornatus San Joaquin pocket mouse	Federal – None State – None BLM – Sensitive	Occurs in dry, open grasslands or scrub areas on fine-textured soils between 1100 and 2000 ft. in the Central and Salinas valleys.	**Present.** Potential habitat occurs in many parts of the AEWP area, especially in the central and northern portions. One San Joaquin pocket mouse was captured on the project site during trapping surveys in 2011. This species was also captured in 2010 during small mammal trapping studies at the Alta Infill Project site, 3 miles south of the AEWP site and 0.3 mile south of the transmission line centerline.
Perognathus parvus xanthonotus Yellow-eared pocket mouse	Federal – None State – None BLM – Sensitive	Joshua tree woodland, desert scrub, pinyon-juniper, mixed and montane chaparral, sagebrush and bunchgrass habitats. Occurs primarily in sandy soils with sparse to moderate shrub cover. Inhabits the eastern slopes of the Piute Mountains and Sierra Nevada along the western fringe of the Mojave Desert.	**Moderate.** Potential habitat occurs throughout project area.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur
Taxidea taxus American badger	Federal – None State – SSC BLM – None	Drier open stages of most shrub, forests, and herbaceous habitats with friable soils.	**Present.** Detected incidentally during surveys for burrowing owl in 2010 (27 burrows/forage holes). In addition, this species was recently (2008) detected during surveys for the Pacific Wind Energy Project, 14 miles southwest of the AEWP area. The project area supports suitable habitat, including friable soils, over much of the site.
Vulpes macrotis arsipus Desert kit fox	Federal – None State – Protected BLM – None	Widespread, open desert lands; constructs below-ground dens; requires soil suitable for burrowing; primarily nocturnal; preys on small mammals	**Present.** Dens and sign detected on site during AEWP surveys.
Xerospermophilus mohavensis Mohave ground squirrel	Federal – None State – Threatened BLM – None	Creosote scrub, alkali scrub, and Joshua tree woodland, usually on flat to gently sloping terrain with sandy, gravelly alluvial soils in the west Mojave Desert. Also feeds in annual grasslands. Often co-occurs with antelope ground squirrel.	**High.** The nearest record for this species is from 1987 and is located less than 1 mile east of the AEWP site, 1.5 miles east of the junction of SR 58 and the Randsburg Cutoff near Cache Creek. A record from 1998 occurs 3 miles east of the project site, and 2 records from 2006 are located less than 2 miles south and 4.5 miles southwest of the AEWP site (0.5 mile east and 0.2 mile east of the transmission line centerline, respectively). The AEWP site and transmission line route supports suitable habitat for this species. Trapping studies have been conducted for this species in 2006 (AEWP site), 2010 (adjacent project, near portions of transmission line), and 2011 (AEWP site), but were negative. Recent trapping studies conducted in nearby and adjacent project areas such as the Alta–Oak Creek Mojave Project and Infills have also been negative for this species.

Table 3.21-1. Special-Status Animals Present or With Potential to Occur at the AEWP Site

Species	Status	Habitat	Potential to Occur

Federal:
Endangered – listed as endangered under the ESA
Threatened – listed as threatened under the ESA
BCC – USFWS Bird of Conservation Concern
Delisted – No longer federally listed due to recovery

State:
Endangered – listed as endangered under the CESA
Threatened – listed as threatened under the CESA
SSC – CDFG Species of Special Concern
FP – CDFG Fully Protected
Watch List – The birds on this watch list are (1) not on the current species of special concern list but were on previous lists and have not been listed under the California ESA; (2) were previously State or federally listed and now are on neither list; or 3) are on the list of FP species.
Delisted – No longer State listed due to recovery
Special Animal – Taxa is tracked in the CNDDB but is not designated with any other special status at the State or federal level.
Protected – Desert kit fox is protected from take under California Fish and Game Code Sections 460 and 4000.

BLM:
Sensitive – Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA.

3.21.2 Data Collection Methodology and Results

General wildlife surveys and habitat assessments were conducted in the AEWP area from 2009 to 2011. In addition, studies were conducted to assess avian and bat use of the AEWP area, and aerial surveys identified nesting raptors within the AEWP and a two-mile buffer area. Surveys for nesting golden eagles were conducted within the AEWP and a ten-mile buffer. Focused and/or protocol surveys for the following special-status animal species were conducted for the AEWP: Mohave ground squirrel, Tehachapi pocket mouse, San Joaquin pocket mouse, desert tortoise, burrowing owl, golden eagle, and Swainson's hawk. The methods and results for each survey (or surveys) are briefly described below. Detailed information for each survey or set of surveys can be found in Appendix D.

Desert Tortoise *(Gopherus agassizii)*

Status: Threatened (ESA and CESA)

Natural History: The desert tortoise is an herbivorous reptile that occurs in the Mojave and Sonoran deserts in southern California, southern Nevada, Arizona, and the southwestern tip of Utah in the U.S., as well as Sonora and northern Sinaloa in Mexico. The designated Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran (Colorado) Desert in California (USFWS, 2011c).

The desert tortoise occupies a variety of habitats from flats and slopes typically characterized by creosote bush scrub at lower elevations to rocky slopes in blackbrush scrub and juniper woodland ecotones (transition zone) at higher elevations. Throughout most of the Mojave Desert, tortoises occur most commonly on gently sloping terrain with sandy-gravel soils and where there is sparse cover of low-growing shrubs, which allows establishment of herbaceous (non-woody) plants. However, surveys at the Nevada Test Site revealed that tortoise sign (e.g., scat, burrows, tracks, shells) was more abundant on upper alluvial fans and low mountain slopes than on the valley bottom. Soils must be friable (easily crumbled) enough for digging burrows, but firm enough so that burrows do not collapse. During the winter, tortoises will opportunistically use burrows of various lengths, deep caves, rock and caliche crevices, or overhangs for cover. Neonate desert tortoises use abandoned rodent burrows for daily and winter shelter; these burrows are often shallowly excavated and run parallel to the surface of the ground (USFWS, 2011c).

Threats to the desert tortoise include degradation and loss of habitat (including through the spread of nonnative, invasive plants), disease, raven predation on juvenile tortoises, collection for the pet trade, and direct mortality and crushing of burrows by off-highway vehicles.

Surveys and Results: In all, 100% of the project site has been surveyed through several survey events.

Protocol presence/absence desert tortoise surveys were conducted by Sundance on a previous configuration of the project site in 2009. Surveys were conducted on 2,182 acres from May 20 to May 27, 2009. A team consisting of 20 experienced desert tortoise biologists conducted the survey by walking a set of transects that covered the 2,182-acre survey area. Transect spacing was at 30 feet between transect centerlines, the standard specified width for desert tortoise presence/absence surveys in the 1992 USFWS protocol. Up to five (5) biologists surveyed together at a time, in a team, as larger team sizes decrease efficiency and accuracy. Four (4) adult tortoises and one (1) juvenile were found on the site, as well as 28 burrows, 1 shell-skeletal remains, and 40 scat events (Sundance, 2009).

Additional protocol presence/absence desert tortoise surveys were conducted by Phoenix concurrently with burrowing owl surveys from April 24 to May 5, 2010. The survey areas consisted of 1,288 acres within the western portion of the project site, which consisted of 4,143 acres at that time (the AEWP has undergone several revisions to the AEWP boundary since 2009). Survey methodology incorporated both the 1992 and 2010 USFWS survey protocols (see Phoenix, 2010b for details regarding survey methodology). Surveyors walked 10-meter wide belt transects within the project footprint in a north to south direction starting a half hour after sunrise and ending no later than a half hour before sunset. Survey teams used hand-held mirrors to view into any potential burrows. Surveyors averaged 1.5 miles per hour, with an average daily coverage rate of 30 acres per day, per person. Weather conditions during the survey effort consisted of an unusually cool, windy, wet conditions (Phoenix, 2010b).

Desert tortoises were not detected within the project boundary during the 2010 surveys, nor were any tortoise sign (scutes, bones, eggshell fragments, drinking depressions, or scat) detected on site. Four (4) burrows were detected during the field effort but there was no tortoise sign associated with these burrows. Three (3) of the burrows appeared inactive and in a slightly deteriorated condition with new annual plant growth at the mouth of the burrow. There was also no sign of fresh dirt/digging at the three (3) burrows. The fourth burrow was a rock burrow that was detected while walking to the polygons. The rock burrow was clear of plants and cobwebs but no tortoise sign was present (Phoenix, 2010b).

In 2011, GANDA conducted a survey for desert tortoise at the AEWP on 379 acres of suitable habitat that were not surveyed during the 2009 or 2010 survey efforts. The survey followed 2010 USFWS protocols. The 379-acre survey area was surveyed using transect centerlines spaced a maximum of 10 meters apart. Surveys were conducted between April 20 and May 2, 2011. During the surveys, skies were clear with temperatures between 50 to 80 degrees Fahrenheit. Winds were calm to moderate, and no precipitation occurred during the field surveys. No live desert tortoises were observed in the AEWP survey area; however, one (1) Class 5 desert tortoise carcass (disarticulated and scattered) was observed in the survey area. In addition, two (2) Class 4 desert tortoise burrows (good condition, possibly tortoise) were observed in the survey area. No sign was associated with the burrows, and they were considered inactive (GANDA, 2011d).

Incidental observations in the AEWP include one (1) adult tortoise recorded in 2010 in the eastern portion of the project area during avian use surveys and three (3) observed during burrowing owl surveys.

Mohave Ground Squirrel (*Xerospermophilus mohavensis*)

Status: Threatened (CESA)

Natural History: The Mohave ground squirrel occupies portions of Inyo, Kern, Los Angeles and San Bernardino counties in the western Mojave Desert. The species ranges from near Palmdale on the

southwest to Lucerne Valley on the southeast, Olancha on the northwest and the Avawatz Mountains on the northeast (BLM, 2005g).

The Mohave ground squirrel occupies all major desert scrub habitats in the western Mojave Desert. It has been observed in habitats such as Mojave creosote scrub, desert saltbush scrub, desert sink scrub, desert greasewood scrub, shadscale scrub, and Joshua tree woodland. These habitat types are distributed throughout the range of the Mohave ground squirrel. In the northern portion of the range of the Mohave ground squirrel, it is found in a plant association described as Mojave mixed woody scrub, typically occurring on hilly terrain and composed of a variety of shrub species (BLM, 2005g).

The Mohave ground squirrel inhabits flat to moderate terrain and is not generally found in steep contours. However, juveniles can apparently traverse steep terrain during dispersal. The species has been found most frequently in sandy, alluvial soils, but is also found in gravelly and occasionally rocky soils. It is not known to occupy areas of desert pavement (BLM, 2005g).

The primary cause of the decline of the Mohave ground squirrel is destruction and fragmentation of its habitat and conversion to urban, suburban, agricultural, military and other uses (BLM, 2005g).

Few recent records for this species exist in the region surrounding the AEWP, and numerous trapping studies have been conducted in recent years for the various wind developments that have been proposed in the vicinity of the AEWP. These studies have primarily been negative, suggesting that the historical population known from the region has either been locally extirpated or occurs at extremely low density and is likely very patchily distributed. However, this species can be difficult to detect even during protocol-level trapping studies, given the high level of temporal and spatial variation in abundance and activity levels. In addition, where population densities are low, Mohave ground squirrel populations may be locally extirpated during periods of drought, but these areas could be recolonized by dispersing individuals from core areas when more favorable conditions return (BLM, 2005g).

Surveys and Results: Protocol surveys were conducted on one (1) grid in 2006 along one (1) mile of access roads in the eastern portion of the AEWP site. In 2010, protocol surveys were conducted on six (6) grids at the Alta Infill Project site, about three (3) miles south of the AEWP site and adjacent to portions of the transmission line route. Protocol surveys were conducted in 2011 for the AEWP. Twenty-four (4) trapping grids were established along linear portions of the AEWP including turbine strings, transmission lines, access roads, and at a laydown area.

No Mohave ground squirrels were detected during any of the surveys (Vanherweg, 2006, 2010, and 2011a, 2011b).

California Condor (*Gymnogyps californianus*)

Status: Endangered (ESA and CESA); CDFG Fully Protected

Natural History: Prehistorically, the California condor ranged widely over much of the southern United States. This species disappeared from much of this range during the late Pleistocene extinction of North American megafauna about 10,000 to 11,000 years ago. By the time Europeans began settling in western North America, the condor range was limited to a narrow Pacific coastal strip extending from British Columbia, Canada to Baja California Norte (USFWS, 1996). The California condor experienced a steady population decline during the 20th century that was primarily related to factors including loss of habitat, low reproductive rate, poisoning, and shooting. By the 1980s, the condor range in California was restricted to a wishbone-shaped area encompassing six (6) counties just north of Los Angeles (USFWS, 1996). In 1982, less than 25 individuals remained in the wild. In 1987 the last remaining wild condors were taken into captivity. In 1992 the first reintroductions into the wild of captive-bred birds began, and reintroductions continue today. As of April 30, 2011, the wild condor population in California numbered 106 individuals. The southern California flock, which is the flock nearest the AEWP, consisted of 34

free-flying released adults, 10 wild-fledged birds, and 3 chicks in wild nests for a total of 47 birds (USFWS, 2011d).

This species is intensively monitored by the USFWS, and as of 2011 half of the birds in the wild California population are tracked via GPS transmitters. This gives a good indication of the main areas of condor use, but because half of wild birds are not tracked, the current distribution of condors is likely larger than what is indicated by mapped GPS locations. However, the maps give a general indication of areas of high condor use, as well as areas that condors forage in less frequently. Further, these maps, when viewed over the last 10 years, indicate that the wild condor population is quickly expanding throughout their former range and possibly beyond. That fact increases concern that condors will utilize areas currently being proposed and developed for wind energy, both in the Tehachapi area as well as in other parts of California.

No condors were observed during any surveys conducted on and near the site, including aerial raptor nest surveys and two (2) years of fixed-point avian use surveys. USFWS data since 2005 indicate that the nearest documented condor was located in the Tehachapi Mountains, 4.3 miles northeast of the AEWP and a historic location was recorded 2.3 miles west of the AEWP.

Golden Eagle *(Aquila chrysaetos)*

Status: Federal Bird of Conservation Concern; Federal Bald and Golden Eagle Protection Act; CDFG Fully Protected; CDFG Watch List

Natural History: The golden eagle is an uncommon permanent resident and migrant throughout California, except the center of Central Valley. This species is perhaps more common in southern California than in northern California. Habitat typically includes rolling foothills, mountain areas, sage-juniper flats, and desert. Golden eagles eat mostly hares, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species needs open terrain for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al., 1988-1990).

Golden eagles are known to nest and forage throughout the area surrounding the project site. While observations of foraging and nesting individuals have typically been more numerous at higher-elevation project sites in the Tehachapi and Piute Mountains, golden eagles have been recorded during avian use surveys at the majority of proposed wind developments evaluated in the region in recent years. In addition, golden eagles are known to collide with wind turbines, and at least eight (8) golden eagle fatalities have been documented at the Pine Tree Wind Development, less than10 miles north of the AEWP.

Surveys and Results: Aerial surveys for nesting golden eagles were conducted during the spring of 2010 and 2011, and are described below. During 2010 surveys, a total of two (2) active golden eagle nests and two (2) inactive golden eagle nests were detected. In 2011, three (3) active and 13 inactive nests were detected. The closest inactive nest was 1.2 miles northwest of the project boundary. During both years, the closest active nest to the AEWP was located three (3) miles to the northwest of the project boundary.

Golden eagles were observed during the 2009/2010 and 2010/2011 fixed-point avian use surveys, also described below. In 2009/2010, 11 golden eagle observations were recorded at the AEWP (one each in spring and summer, three in fall, and six in winter). During the 2010/2011 surveys, eight (8) golden eagle observations were recorded (none in spring or summer, one in fall, and seven in winter).

Burrowing Owl *(Athene cunicularia)*

Status: Federal Bird of Conservation Concern; CDFG Species of Special Concern; BLM Sensitive

Natural History: The burrowing owl inhabits open, dry grassland, prairie, and deserts. It is also found in grass, forb, and open shrub stages of pinyon-juniper and ponderosa pine habitats as well as agricultural lands. This small owl is found throughout California in appropriate habitats. In the western United

States, burrowing owls are rarely known to construct their own burrows, and this species is strongly associated with burrowing mammals such as ground squirrels (*Spermophilus* spp.). The majority of burrows used by burrowing owls in California were originally constructed by ground squirrels, but the species will also occupy man-made niches such as banks and ditches, piles of broken concrete, and even abandoned structures (BLM, 2005g). The burrowing owl is migratory over much of its range, even in southern California, but some burrowing owls will also winter here (Klute et al., 2003). Burrowing owl numbers have been markedly reduced in California for at least the past 60 years. Direct human-caused mortality (including vehicle collisions), pesticides (including chemical eradication of ground squirrels), habitat degradation and loss, and predators are all known threats to burrowing owls (BLM, 2005g). Burrowing owls are known to occur in lower elevations of the TWRA.

Surveys and Results: All protocol-level burrowing owl surveys were conducted in accordance with the California Burrowing Owl Consortium (CBOC) *Survey Protocol & Mitigation Guidelines* (CBOC 1993). The purpose of a Phase I survey is to conduct an assessment of habitat suitability for burrowing owls. The purpose of a Phase II survey is to conduct a search for individual burrowing owls, as well as appropriately-sized burrows a burrowing owl could potentially use, if it has been determined during Phase I surveys that suitable burrowing owl habitat is present. The purpose of a Phase III survey is to determine owl presence on the site, and if possible, describe how owls are utilizing the site.

Phase II protocol surveys were conducted by Phoenix concurrently with desert tortoise surveys from April 24 to May 5, 2010. The survey areas consisted of 1,288 acres within the western portion of the project site, which consisted of 4,143 acres at that time (the AEWP has undergone several revisions to the project boundary since 2009). To date, 100% of the proposed wind development area has been surveyed. Methods followed the Phase II protocol outlined in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC, 1993). The purpose of a Phase II survey is to conduct a search for individual burrowing owls, as well as appropriately sized burrows a burrowing owl could potentially use. Surveyors walked 10-meter wide belt transects within the project footprint in a north to south direction starting a half hour after sunrise and ending no later than a half hour before sunset. Survey teams used hand-held mirrors to view into any potential burrows. Surveyors averaged 1.5 miles per hour, with an average daily coverage rate of 30 acres per day, per person. Weather conditions during the survey effort consisted of an unusually cool, windy, wet conditions (Phoenix, 2010b).

Phase II and III protocol surveys were conducted on 992 acres within the eastern portion of the AEWP between May 30 and July 15, 2010. Phase II survey methods consisted of walking 20-meter wide belt transects within the project footprint in a north to south direction starting a half hour after sunrise and ending no later than a half hour before sunset. The surveyors' average coverage rate was 1.5 miles per hour, with an average daily coverage rate of 50 acres per day per person. Weather conditions during the survey effort consisted of below average temperatures for May and June (50-80 degrees Fahrenheit). July temperatures ranged from 75-100 degrees Fahrenheit (Phoenix, 2010a).

The objective of the Phase III surveys is to document the owl behavior, territory size, number of owls, and distribution of burrowing owls throughout the project site. The Phase III surveys involved re-visiting all portions of the site on four (4) separate occasions. All known burrow locations were re-visited to determine if owls were present and/or if any new burrowing owl sign had been deposited. Vehicular surveys were also conducted during the Phase III surveys by driving along existing dirt roads within the project site and stopping every 300 meters to scan the vegetation canopy for owls while playing burrowing owl vocalizations to elicit a response. The call broadcast survey method has been demonstrated to increase detection probability, and was incorporated into the Phase III survey efforts to increase the potential for detecting any owls that were missed and/or moved onto the site since the Phase II survey effort was completed (Phoenix, 2010a).

The Phase II burrowing owl surveys were positive for burrowing owl sign in the eastern portion of the site. Two (2) burrows with whitewash and pellets were observed. Burrowing owl sign was not detected

in the western portion of the site. Four (4) burrows were recorded, but did not have whitewash, feathers, or owl pellets that would indicate recent use by burrowing owls. Phase III surveys in the eastern portion of the site were negative for additional owl detections (Phoenix 2010a and 2010b).

In 2011, GANDA conducted protocol surveys on areas of suitable habitat within the AEWP that were not surveyed in 2010 by Phoenix. The 2011 survey area comprised 1,321 acres, and included the transmission line route. Surveys followed current protocol for this species (CBOC, 1993) and Phase I and II surveys were conducted concurrently between April 20 and May 2, and July 19-25, 2011 to determine presence or absence of individual owls or potential owl burrows in the AEWP survey area. Phase III surveys were conducted between June 15–18, and July 25–28, 2011 to determine owl presence in the AEWP survey area. Transects were a maximum of 30 meters (100 feet) wide. Surveys were conducted during the day in weather that was conducive to observing owls outside of their burrows; surveys were carried out on days with good visibility and clear skies, little to moderate wind speeds, and no precipitation (GANDA, 2011e).

No burrowing owls were observed in the AEWP survey area during the surveys. Eight suspected burrowing owl burrows were observed in the AEWP survey area during the Phase I and II surveys; however, during the Phase III surveys, it was determined that no owls were using these burrows and they were therefore inactive. (GANDA, 2011e).

Incidental observations in the AEWP include two (2) burrowing owl burrows with sign that were recorded during desert tortoise protocol surveys in 2011.

Swainson's Hawk (*Buteo swainsoni*)

Status: Federal Bird of Conservation Concern; Threatened (CESA)

Natural History: Swainson's hawks breed regularly from southwestern Canada to northern Mexico. The western limit of their breeding distribution extends from eastern Washington, eastern Oregon, and northeastern California, through Nevada to northern and southeastern Arizona. The eastern limit of the breeding range extends to western Minnesota, eastern Nebraska, central Kansas, central Oklahoma, and central Texas. Apparently isolated outlier populations also occur in the interior valleys of British Columbia, the Central Valley of California, west-central Missouri, and in northeastern Illinois. Nearly all Swainson's hawks spend the northern hemisphere winter in South America (BLM, 2005g).

Historically, the Swainson's hawk breeding range in California included the Great Basin (including the Modoc Plateau); the Sacramento and San Joaquin Valleys; along the coast in Marin, Monterey, Ventura, Los Angeles, and San Diego counties; and a few scattered sites in the Colorado and Mojave deserts. Today, Swainson's hawks still nest in most previously occupied regions of the state, but the number of breeding birds has been greatly reduced throughout major portions of the range (e.g., Central Coast Ranges), and the species has been extirpated in coastal southern California. Only the Central Valley and Modoc Plateau still support more than a few isolated pairs. In California, migrating flocks of up to 100 or more Swainson's hawks may be observed away from the major mountain ranges during the spring and fall. These observations have become less frequent as the overall population has declined. About 30 birds have wintered in the Sacramento-San Joaquin River Delta annually since 1991 and are the only confirmed regularly wintering population in California (BLM, 2005g).

The natural foraging habitat of Swainson's hawks is relatively open stands of grass-dominated vegetation and relatively sparse shrublands. Trees are typically widely scattered or found in bands along riparian corridors. Much of the original habitat has been converted to either urban development or cultivated agricultural uses. Swainson's hawks can forage agricultural fields with many types of crops. However, some studies have found that this species is more abundant in areas of moderate agricultural development than in either grassland or areas of extensive agricultural development. Alfalfa fields are routinely used by foraging Swainson's hawks. Orchards and vineyards in general are not suitable foraging habitat for Swainson's hawk due to the dense woody cover (BLM, 2005g).

Breeding Swainson's hawks have three general habitat requirements: (1) suitable foraging habitat with adequate prey, (2) nest sites, and (3) and isolation from disturbances that may disrupt breeding activities. The primary nest trees in the western Mojave Desert are Joshua trees and Fremont cottonwoods, but other large trees could also be used, especially where planted in narrow bands such as agricultural windbreaks (e.g., cottonwoods). In both the West Mojave Planning Area and the Eastern Mojave National Preserve, Swainson's hawks forage on suitable prey within the Joshua tree woodlands. In addition, agricultural areas with suitable crop types and located in proximity to nest sites may meet Swainson's hawk foraging requirements (BLM, 2005g).

Several hypothesis have been suggested to explain the decline of Swainson's hawks in California. Among them are: (1) mortality during migration and on the wintering grounds in South America; (2) poisoning by toxic chemicals, including pesticides, in South America; (3) eggshell thinning; (4) habitat loss on the wintering grounds; (5) disturbance on the breeding grounds; (6) loss or degradation of habitat on the breeding grounds; and (7) increased competition with other species. No single hypothesis provides an adequate explanation for the observed declines in California, and all are likely contributors. Within the West Mojave Planning Area, loss or degradation of nesting and foraging habitat is the primary threat to the small breeding population of Swainson's hawks (BLM, 2005g).

All documented nesting attempts by Swainson's hawks in the west Mojave Desert are in the Antelope, Victor, and Apple valleys from near Palmdale and Lancaster to Adelanto and Victorville. Within this range, they nest in extremely low densities and apparently not in all years in desert scrub vegetation with an overstory of Joshua trees and in Fremont cottonwoods and other large trees along stream courses or planted as windbreaks (BLM, 2005g). A very small breeding population of Swainson's hawk has been documented in the Antelope Valley over the last several years, but no nests are known from within five (5) miles of the AEWP site.

Surveys and Results: CH2MHILL and WEST conducted surveys for nesting Swainson's hawks within five (5) miles of the AEWP site and transmission line route in 2011. The current protocol for Swainson's hawk surveys in the Antelope Valley, *Swainson's hawk survey protocols, impact avoidance, and minimization measures for renewable energy projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CEC and CDFG, 2010), recommend that ground surveys for Swainson's hawk nests are conducted on foot or by vehicle within five (5) miles of the project; however, a combination of helicopter surveys and protocol-level surveys were implemented because land control is not available outside the project area. The detection rate of Swainson's hawk nests from helicopter is expected to be low, and helicopters pose a high risk of disturbance to nesting birds (SHTAC, 2000). Multiple aerial surveys with experienced raptor biologists were completed to optimize effectiveness and ensure adequate survey of areas that would otherwise be missed during restricted ground surveys (CH2MHILL, 2011v and 2011w).

Helicopter-based aerial surveys were completed by WEST in April and May 2010 prior to the issuance of the CEC and CDFG 2010 protocol throughout the majority of the survey area. Additional helicopter-based surveys were completed in late February and late March 2011. In accordance with the CEC and CDFG 2010 protocol for Survey Period II (arrival and nest building), CH2MHILL completed three (3) separate ground-based surveys between April 25 and April 30, 2011. The CEC and CDFG protocol recommends that at least two (2) survey periods are evaluated using the ground-based survey techniques; however, CH2MHILL and WEST evaluated Survey Period I (pre-arrival: January to March 31) in February and March 2011, and Survey Period I and Survey Period III (egg laying, incubation: May 1 to May 30) in April and May, 2010 using helicopter-based surveys. Potentially suitable nesting habitats warranting survey were defined as those including Joshua tree woodlands, grasslands, desert scrub communities, agricultural land, riparian habitats, windrows, residential shade trees, and artificial nest structures, such as transmission poles. Steep, mountainous terrain and densely wooded habitats were excluded from the surveys as they were determined to be unlikely to support nesting Swainson's hawks. All roads and accessible areas containing potential habitat were evaluated according to the CEC and CDFG 2010 protocol during the April 2011 ground-based surveys. In addition, these areas, as well as other areas

where vehicle or pedestrian access was unavailable, were visually inspected from helicopter during the aerial surveys (CH2MHILL, 2011v and 2011w).

No Swainson's hawks or nests were observed during the ground-based or aerial surveys completed for the AEWP site or transmission line (CH2MHILL, 2011v and 2011w). One (1) Swainson's hawk was recorded on April 1, 2011 during fixed-point avian use studies, and was considered a migrant (WEST, 2011b).

Raptor Nest Surveys

Surveys and Results: Raptor nest surveys were conducted via helicopter throughout the AEWP and surrounding areas on April 13 and May 24, 2010 and on February 22, April 12, and June 1-2, 2011. The objective of the surveys was to locate nests that may be subject to disturbance and/or displacement effects from the construction and/or operation of a wind-energy facility at the AEWP site. While active and inactive nests of all raptor species were recorded and emphasis was placed on their detection within two (2) miles of the AEWP, the surveys specifically targeted golden eagles in the area within 10 miles of the AEWP site and the protocols were consistent with recent guidance issued by the USFWS (WEST, 2010c and 2011b).

During the 2010 survey, two (2) aerial surveys were conducted with two (2) observers. Surveys occurred during the spring breeding period for golden eagles and other raptors. Three (3) aerial surveys were conducted via helicopter by two (2) observers (not including the pilot) during the spring 2011 breeding period.

Ground-based raptor nest surveys were also conducted in conjunction with fixed-point bird use surveys during the peak of the breeding season (March – June) in both 2010 and 2011, when target species would be actively incubating eggs or attending young. If nesting species, status, or outcome could not be determined from aerial surveys, ground-based follow-up visits were made provided the nest site could be accessed from the ground.

More details regarding survey methodology can be found in *Avian Baseline Studies at the Sun Creek Wind Resource Area, Kern County, California, Final Report May 2009 – May 2010* and *Avian Baseline Studies at the Alta East Wind Resource Area Kern County, California Final Report, July 10, 2010 – June 1, 2011* (WEST, 2010c and 2011b, located in Appendix D).

During the 2010 raptor nest surveys, a total of two (2) active golden eagle nests were detected. One (1) active golden eagle nest was observed on a cliff ledge three (3) miles from the northwestern boundary of the AEWP (see Figure 7 of WEST, 2010c, located in Appendix D). Two (2) nestlings were observed in the nest on May 24th. The second active golden eagle nest was observed in a live gray pine (*Pinus sabineana*) one (1) mile outside of the western edge of the 10-mile buffer (see Figure 7 of WEST, 2010c). During the first survey on April 13th, an adult was observed on this nest. On the May 24th flight, both adults were observed perched in the area, but the nest was empty and it was concluded that the nest had failed. Single adult golden eagles were observed at two (2) additional locations within the 10-mile buffer: seven (7) miles northeast of the AEWP, and 7.5 miles to the south of the AEWP (see Figure 7 of WEST, 2010c). Both locations contained evidence of previous golden eagle nesting (old nests) and both areas have records of historical nesting. However, no active nests were identified at these locations during either survey (WEST, 2010c).

During the 2011 raptor nest survey, three (3) active golden eagle nests were identified within 10 miles of the AEWP. These nests were located 3.0 miles to the northwest, 3.8 miles to the north, and 6.8 miles to the north of the AEWP (see Figure 2 of WEST, 2011b, located in Appendix D). All three (3) nests were located during the February 22 flight, but were inactive during that time. During the second round of surveys on April 12, adults were observed incubating at each nest. During the final survey on June 1, the nest to the northwest was empty (presumed to have failed), while two (2) young were observed in the northernmost nest and a single nestling was observed on the third nest. The age of the young was esti-

mated to be between seven (7) and eight (8) weeks. Additionally, 10 inactive golden eagle nests were identified within the 10-mile buffer and three (3) additional inactive nests were identified just outside the 10-mile buffer (see Figure 2 of WEST, 2011b). The closest of these inactive golden eagle nests is 1.2 miles to the northwest of the AEWP (WEST, 2011b).

For all other raptors, no active raptor nests were located within the boundary of the AEWP, or within the surrounding two-mile buffer area during either year. However, in 2010, nine (9) inactive nests, and a single active common raven nest were identified within two (2) miles of the study area. One (1) inactive raptor nest and two (2) active common raven nests were identified within two (2) miles of the AEWP in 2011. Additionally, while conducting surveys for golden eagles within the 10-mile buffer and over the course of other fieldwork conducted for the AEWP during spring 2010 and 2011, a number of active raptor nests were identified in the region. In 2010, two (2) active red-tailed hawk nests and three (3) active great horned owl (*Bubo virginianus*) nests were recorded. Additionally, seven (7) active common raven nests and 23 inactive nests were identified within ten miles of the AEWP. In 2011 two (2) great horned owl nests, two (2) prairie falcon nests, and seven (7) red-tailed hawk nests were recorded. No Swainson's hawk nests were observed within the survey area. Additionally, thirteen active common raven nests and 28 inactive raptor nests were observed. It should be noted that only the area encompassed by a two-mile buffer of the AEWP was systematically searched for raptor nests and nests of other large birds. Outside of this area, the survey effort focused on golden eagle nesting habitat; however, any raptor or raven nest encountered was recorded as an incidental nest observation (WEST, 2010c and 2011b).

Fixed-Point Avian Use Surveys

Surveys and Results: WEST conducted studies in 2009/2010 and 2010/2011 to assess avian use of the AEWP site. The objective of the fixed-point bird use surveys was to estimate the seasonal, spatial, and temporal use of the AEWP site by birds, particularly raptors. During Year 1, bird use surveys were conducted from May 11, 2009, through May 6, 2010, at six (6) points established throughout the AEWP. The six (6) points were selected to survey representative habitats and topography within the AEWP, while achieving relatively even coverage of the study area (see Figure 4 of WEST, 2010c, located in Appendix D). After the initial establishment of the six (6) survey points, the project boundary was adjusted such that points 4 and 5 no longer fell within the project site; however, these points continued to be surveyed for the duration of the study. Each survey plot consisted of a circle with a radius of 2,625 feet (800 meters) centered on the point. All species of birds observed during each 30-minute fixed-point bird use survey were recorded. Observations of large birds beyond the 2,625-meter radius were recorded, but were not included in the statistical analyses; for small birds, observations beyond a 328-foot (100-meter) radius were excluded. Surveys were conducted about once per week during each season: spring (March 1 to May 31), summer (June 1 to August 31), fall (September 1 to November 15), and winter (November 16 to February 28). Surveys were carried out during daylight hours, and survey periods varied to cover all daylight hours during a season. To the extent practical, each point was surveyed about the same number of times (WEST, 2010c).

In Year 2, use surveys were conducted weekly from July 10, 2010, through June 1, 2011 (WEST, 2011b). To the extent possible, survey stations were selected to be consistent with locations used in the Year 1 survey effort. However, due to changes to land access and changes to the project boundary, points 4, 5, and 6 were relocated for the Year 2 survey period to more accurately assess the area currently planned for wind turbine installation (see Figure 1 of WEST, 2011b, located in Appendix D).

During the Year 1 study, 61 unique bird species were identified over the course of 311 30-minute surveys, representing 2,581 individuals within 1,044 groups. A total of 43 raptors were observed, representing six (6) species. A mean of 0.66 large bird species/800-meter plot/30-minute survey and 1.95 small bird species/100-meter plot/30-minute survey were recorded. In Year 2, a total of 2,493 individuals within 745 separate groups were recorded during surveys, and 48 unique bird species were identified. A mean of 0.67 large bird species/800-meter plot/30-minute survey and 1.37 small bird species/100-meter

plot/30-minute survey were recorded (WEST, 2010c and 2011b). Table 3.21-2 summarizes the results of the Year 1 and Year 2 studies.

Table 3.21-2. Avian Diversity at the AEWP Site

Season/Year*	Number of Site Visits	Number of Surveys	Number of Unique Species	Number of Individual Birds	Species Richness (species/plot/30-minute survey)	
					Large Birds	Small Birds
Spring/Year 1	14	84	50	1,028	0.90	2.37
Summer/Year 1	12	72	22	250	0.50	1.39
Fall/Year 1	11	66	28	473	0.70	2.42
Winter/Year 1	15	89	30	830	0.57	1.73
Subtotal Year 1	***52***	***311***	***61***	***2,581***	***0.66***	***1.95***
Spring/Year 2	13	70	38	664	0.69	2.03
Summer/Year 2	9	54	16	219	0.35	0.91
Fall/Year 2	10	60	26	524	0.67	1.28
Winter/Year 2	15	76	20	1,086	0.94	1.26
Subtotal Year 2	***47***	***260***	***48***	***2,493***	***0.67***	***1.37***
Total	**99**	**571**	**Mean = 54.5**	**Mean = 2,537**	**Mean = 0.67**	**Mean = 1.66**

*Year 1 study was conducted May 11, 2009 through May 6, 2010; Year 2 study was conducted July 10, 2010 through June 1, 2011

Source: WEST, 2010c and 2011b.

In both study years, bird diversity (number of unique species) was greatest in the spring, followed by the winter in Year 1 and the fall in Year 2. The lowest avian diversity was recorded in summer both years (Table 3.21-2). Large bird species richness (mean number of species per survey) was highest in the spring in Year 1 and winter in Year 2, but lowest in summer both years. For small birds, the highest species richness was observed in the fall during Year 1 (followed closely by spring), and the spring during Year 2. During Year 2, small bird species richness was similar in fall and winter. As with large birds, the lowest diversity of small birds recorded in both years was during the summer (WEST, 2010c and 2011b).

Cumulatively, regardless of bird size, six (6) species (9.8 percent [9.8%] of all species) composed 70.6 percent (70.6%) of the Year 1 observations: white-crowned sparrow (*Zonotrichia leucophrys*), house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), sage sparrow (*Amphispiza belli*), and turkey vulture (*Cathartes aura*). Individually, all other species comprised less than four percent (4%) of the observations. A total of 43 individual raptors were recorded within the AEWP, representing six (6) species: Cooper's hawk (*Accipiter cooperii*), sharp-shined hawk (*Accipiter striatus*), red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), golden eagle, and American kestrel (*Falco sparverius*). In Year 2, six (6) species (12.5 percent [12.5%] of all species) composed 74.6 percent (74.6%) of total observations: common raven, sage sparrow, white-crowned sparrow, western meadowlark (*Sturnella neglecta*), western bluebird (*Sialia mexicana*), and California quail (*Callipepla californica*). All other species comprised less than four percent (4%) of total observations, individually. A total of 48 individual raptors were recorded within the AEWP in Year 2, representing nine (9) species: Cooper's hawk, red-tailed hawk, Swainson's hawk, northern harrier, golden eagle, American kestrel, peregrine falcon (*Falco peregrines*), prairie falcon (*Falco mexicanus*), and osprey (*Pandion haliaetus*). One (1) unidentified accipiter and six (6) unidentified hawks were also observed during surveys (WEST, 2010c and 2011b).

The data collected during these studies suggest that the AEWP is not within a high bird use area or major spring or fall migration pathway. This is consistent with studies at several other proposed wind development projects in the desert portions of eastern Kern County that suggest migrants pass through in a more diffuse fashion. In addition, the habitat and features of the AEWP site are not unique to the surrounding landscape, nor do they appear to be particularly preferred or critical to migrants. For example, no riparian

habitat or perennial water sources exist on or near the site, and features such as these tend to attract large numbers of migrants especially in the arid Mojave Desert and foothills of the Tehachapi and Piute Mountains.

In both years, flight height characteristics were estimated for both bird types and species. Overall, a mean of 31.9 percent (22.7 percent in Year 1 and 41.0 percent in Year 2) of flying large birds were observed within the rotor-swept height (RSH), which is the elevation range where birds would be susceptible to collision with turbine blades. The RSH is 115 to 427 feet (35 to 130 meters) above ground level. Of the flying large birds, a mean of 53.4 percent (57.6 percent in Year 1 and 49.1 percent in Year 2) were observed below the RSH and a mean of 14.8 percent (19.7 percent in Year 1 and 9.9 percent in Year 2) were above the RSH. The large bird types with the greatest percentage of observations within the RSH were vultures (both years), raptors (Year 1), and large corvids (Year 2). It should be noted that in Year 1, golden eagle was recorded flying in the RSH in 70.0 percent (70.0%) of observations, and in Year 2, in 87.5 percent (87.5%) of observations. In addition, In Year 1, one (1) sharp-shinned hawk was observed, and it was flying within the RSH, while one of the two (2) sharp-shinned hawks observed was also recorded within the RSH. One (1) observation each of Swainson's hawk, osprey, and Cooper's hawk were recorded during the Year 2 study, and each one was flying within the RSH. For diurnal raptors in general, a mean of 33.8 percent (23.1 percent in Year 1 and 44.4 percent in Year 2) were observed flying within the RSH, while a mean of 51.9 percent (53.8 percent in Year 1 and 50.0 percent in Year 2) were below the RSH and a mean of 14.4 percent (23.1 percent in Year 1 and 5.6 percent in Year 2) were flying above the RSH (WEST, 2010c and 2011b).

In Year 1, the majority of flying passerines (94.4 percent [94.4%]) were observed below the RSH, and the remaining 5.6 percent (5.6%) were observed flying within the RSH. In Year 2, 5.2 percent (5.2%) of small birds were observed flying within the estimated RSH. The majority (94.7 percent [94.7%]) of passerines, and all of the woodpeckers and swifts/hummingbirds were observed flying below the RSH. No small birds were recorded flying above the RSH (WEST, 2010c and 2011b).

Bats

Surveys and Results: Surveys to assess bat activity at the AEWP site were initiated July 7, 2009, at two (2) met towers located within the AEWP (see Figure 1 of WEST, 2010d, located in Appendix D). A total of four (4) Anabat™ SD1 bat detectors (Titley™ Scientific, Australia) were deployed during the survey period. Two (2) detectors were elevated 30 meters (98 feet) on the met towers, while the other detectors were positioned two (2) meters (6.5 feet) above the ground at the base of the towers. Detectors were programmed to collect data continuously from 30 minutes before sunset to 30 minutes after sunrise, the period corresponding to greatest bat activity (WEST, 2010d). A second year of bat acoustic surveys was conducted from December 13, 2010 to November , 2011 to supplement the Year 1 study, (WEST, 2012). The second year of the studies involved monitoring bat activity via two (2) paired detectors at one (1) met tower in the southwest corner of the AEWP, an area that was not assessed during the 2009/2010 surveys (see Figure 1 of WEST, 2012, located in Appendix D). Methods used during the Year 2 study are the same as those described for the Year 1 study.

For the Year 2 study, both of the paired detectors were deployed on December 13, 2010. On September 8, 2011, after approximately 9 months of continuous data collection, fieldwork associated with the AEWRA was suspended per request by Alta Windpower. At this time, both AnaBat detectors were left in the field but were no longer serviced. The ground-based AnaBat continued to collect data through September 12, 2011, until the storage capacity of the memory card was exceeded, while the raised detector continued to collect data through November 1, 2011. As a result, the sampling period for each detector varies slightly (WEST, 2012).

Anabat detectors record bat echolocation calls with a broadband microphone. The echolocation sounds are then translated into frequencies audible to humans by dividing the frequencies by a predetermined ratio. Bat echolocation detectors also detect other ultrasonic sounds made by insects, raindrops hitting

vegetation, wind, and other sources. Detectors filtered raw data to reduce interference from these other sources of ultrasonic noise (WEST, 2010d and 2011c).

The units of bat activity were number of bat passes. A pass was defined as a continuous series of two (2) or more call notes produced by an individual bat with no pauses between call notes of more than one (1) second. For each station, bat passes were sorted into three (3) groups, based on their minimum frequency, that correspond roughly to species groups of interest. For example, species such as western red bat (*Lasiurus blossevillii*) and those in the genus *Myotis* generally echolocate at frequencies at or above 35 kilohertz (kHz), while species such as silver-haired bat (*Lasionycteris noctivagans*) and hoary bat (*Lasiurus cinereus*) have echolocation frequencies that fall between 15 and 35 kHz, and species such as spotted bat (*Euderma maculatum*) and western mastiff bat (*Eumops perotis californicus*) produce calls with minimum frequencies less than 15 kHz. Therefore, in the Year 1 study, passes were classified as either high-frequency (greater than or equal to 35 kHz), low-frequency (between 15 and 35 kHz), or very low frequency (less than 15 kHz) passes. In the Year 2 study, passes were classified as high-frequency (greater than or equal to 40 kHz), mid-frequency (between 30 and 40 kHz), or low-frequency (below 30 kHz) passes. Table 3.21-3 lists the bat species classified as high-frequency, low-frequency, and very-low frequency species that have the potential to occur in the AEWP. Data determined to be noise (produced by a source other than a bat) or call notes that did not meet the pre-specified criteria to be termed a pass were removed from the analyses. Due to their distinctive sonograms and call frequencies, an attempt was made during the Year 2 study to identify passes made by hoary bat and western red bat (WEST, 2010d and 2011c).

During the period July 7, 2009, to July 9, 2010, a total of 217 bat passes were recorded during 1192 detector-nights, or (mean ± standard error [SE]) 0.19 ± 0.03 bat passes per detector per night. Bat activity ranged between 0.08 and 0.32 bat passes per detector-night among stations, and overall activity rates were similar between ground (0.20 bat passes per detector-night) and raised stations (0.19 bat passes per detector-night). Passes attributable to low-frequency bats comprised the majority of bat activity (94.8 percent [94.8%] of all bat passes), suggesting greater relative abundance of species such as silver-haired, hoary, and Mexican free-tailed bat (*Tadarida brasiliensis mexicana*; Table 3.21-3). No passes by species in the very low-frequency category were identified (WEST, 2010d).

Bats were active year-round during the Year 1 study, with seasonal activity rates ranging from a low of 0.09 bat passes per detector-night in the winter of 2009 to a high of 0.30 in the spring of 2010. On a weekly basis, variation in activity was evident during the year, with most activity concentrated in late October and late April, likely reflecting movement of bats through the area during fall and spring migration. Nightly activity differed between ground and raised detectors during the fall, with most activity recorded at raised detectors. Patterns of nightly activity were more similar in the spring. These results suggest that bats within the AEWP tend to fly at higher altitudes during the fall, and may therefore be at greater risk of collision with wind turbines (WEST, 2010d).

During the period December 13, 2010, to November 1, 2011, a total of 124 bat passes were recorded during 557 detector-nights, or 0.23 ± 0.13 (mean ± SE) bat passes per detector per night. AnaBat units were operational for 86.0% of the sampling period (see Figure 2 of WEST, 2012).

During the Year 2 study, the ground-based AnaBat station recorded nearly twice the activity (0.30 ± 0.23 bat passes per detector-night) as the raised station (0.16 ± 0.07; Table 2, Figure 3 of WEST, 2012), even though the raised detector was operational for a longer time during the fall migration period (the raised detector operated until November 1 while the ground detector only operated until September 12).

The highest bat activity occurred during the first week of the study period (December 13 -16, 2010), with an average of 9.88 bat passes per detector-night recorded during that period. Overall, bat activity was greatest in the winter of 2010/2011 (0.64 ± 0.52 passes per detector-night), followed by the fall of 2011 (0.13 ± 0.04). Average bat activity during the spring and summer was relatively very low (0.01 ± 0.01 and

0.03 ± 0.02 passes per detector-night, respectively). Among individual detectors, the highest seasonal activity rates were also recorded in the winter (WEST, 2012).

As was recorded during the 2009/2010 study, passes attributable to low-frequency bats comprised the majority of bat activity (83.9 percent [83.9%] of all bat passes), suggesting greater relative abundance of species such as big brown bat (*Eptesicus fuscus*) and Mexican free-tailed bat (*Tadarida brasiliensis mexicana*). Mid-frequency bats comprised a further 15.3% of activity, and HF bats comprised less than 0.1% of total bat activity. Included in the LF bat category were five hoary bat passes, with three recorded at the ground station and six recorded at the raised station. No western red bat calls were identified. The parameters used to identify hoary and western red bat calls were conservative. Given the high intraspecific variability of bat calls and the number of call files that were too fragmented for proper identification, it is likely that more hoary bat and western red bat calls were recorded during the study than were positively identified (WEST, 2012).

Table 3.21-3. Bat Species that Potentially Occur at the AEWP by Call Frequency

Species	Status	Long-Distance Migrant	Known Fatality at Wind Energy Facilities
High-frequency (≥ 35 kHz)			
Western red bat *Lasiurus blossevillii*	SSC		X
Western yellow bat* *Lasiurus xanthinus*	SSC		X
California leaf-nosed bat *Macrotus californicus*	BLM S, SSC		
California bat *Myotis californicus*	—		
Western small-footed bat *Myotis ciliolabrum*	BLM S		
Long-eared myotis* *Myotis evotis*	BLM S		X
Little brown bat* *Myotis lucifugus*	—		X
Long-legged bat *Myotis volans*	—		X
Yuma bat *Myotis yumanensis*	BLM S		
Canyon bat *Parastrellus hesperus*	—		X
Low-frequency (15 - 35 kHz)			
Pallid bat *Antrozous pallidus*	BLM S, SSC		
Townsend's big-eared bat *Corynorhinus townsendii*	BLM S, SSC		
Big brown bat *Eptesicus fuscus*	—		X
Silver-haired bat *Lasionycteris noctivagans*	—	X	X
Hoary bat *Lasiurus cinereus*	—	X	X

Table 3.21-3. Bat Species that Potentially Occur at the AEWP by Call Frequency

Species	Status	Long-Distance Migrant	Known Fatality at Wind Energy Facilities
Fringed myotis *Myotis thysanodes*	BLM S		
Pocketed free-tailed bat *Nyctinomops femorosaccus*	SSC		X
Mexican free-tailed bat *Tadarida brasiliensis mexicana*	—	X	X
Very low-frequency (<15 kHz)			
Spotted bat** *Euderma maculatum*	BLM S, SSC		
Western mastiff bat** *Eumops perotis californicus*	BLM S, SSC		

* Classified as mid-frequency species (30-40 kHz) in 2010/2011 study
** Classified as low-frequency species (<30 kHz) in 2010/2011 study
BLM S – BLM Sensitive Species
SSC – CDFG Species of Special Concern

Sources: WEST, 2010d and 2011c.

It is unlikely that significant numbers of bats occur throughout the AEWP site. While studies on some other wind development projects in the TWRA have detected very localized migratory corridors and relatively high levels of at least seasonal activity near perennial water sources and riparian areas, data collected at the AEWP site do not suggest a similar pattern. It should be noted that although the data collected at the AEWP site was only collected at two (2) locations in 2009/2010 and one (1) location in 2010/2011, no significant resources for bat foraging or water sources exist on site, likely limiting bat abundance and diversity compared with adjacent mountain ranges to the west and north and localized desert riparian habitats in the general region. Therefore, the two data collection points on the project site are likely representative of bat use across the project site, given the overall site characteristics (primarily desert scrub communities with no water sources or other habitat features likely to attract higher densities of bats).

Potential roosting habitats in the form of rock outcrops, cliff edges, and mines are more abundant in and near the northern portion of the project area, and no Anabat recorders were located in this area during the studies. While this area may support a slightly higher level of bat use due to proximity to these features, it still lacks any riparian habitats or water sources and bat use in this area is not expected to be significantly higher than that recorded in the central and southern portions of the AEWP.

A bat roost assessment was completed in June 2011 to assess the project site's potential to support bat maternity colonies. The study determined that potential roosting habitat for large colonies of bats is scarce to nonexistent within the project boundary. The few features with potential to be used by roosting bats were confirmed inactive at the time of the study. The memo further concludes that the relatively small size of these structures, the lack of bat sign (e.g., guano deposits), and the absence of bats on the nights surveyed suggest these outcrops do not serve as important roosting habitat for large maternity colonies. Therefore, focused roost surveys were not conducted at the two sites because of the determination that there was a low likelihood of bat occurrence (WEST, 2011d).

3.21.3 Applicable Regulations, Plans, and Standards

This section provides a discussion of federal, State, and regional environmental regulations, plans, and standards applicable to the AEWP for wildlife resources.

3.21.3.1 Federal Regulations

National Environmental Policy Act

The National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) declares a continuing federal policy that directs "a systematic, interdisciplinary approach" to planning and decision-making and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environmental and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of federal actions. The BLM is the Lead Agency under NEPA for the AEWP.

Federal Endangered Species Act (ESA)

The federal ESA and subsequent amendments designates threatened and endangered animals and plants and provides measures for their protection and recovery. "Take" of listed animal species and of listed plant species is prohibited by Section 9 of the ESA without obtaining a federal permit. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm includes any act that actually kills or injures fish or wildlife, including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Activities that damage the habitat of (i.e., harm) listed wildlife species require approval from the USFWS for terrestrial species. The ESA also generally requires determination of critical habitat for listed species. If critical habitat has been designated, impacts to areas that contain the primary constituent elements identified for the species, whether or not it is currently present, are also prohibited.

ESA Section 7 and Section 10 provide two (2) pathways for obtaining authority to take listed species.

Under Section 7 of the ESA, a federal agency that authorizes, funds, or carries out a project that "may affect" a listed species or its critical habitat must consult with USFWS. For example, the United States Army Corps of Engineers (USACE) must issue a permit for projects impacting non-wetland Waters of the United States (WUS) or wetlands under USACE jurisdiction. In a Section 7 Consultation, the lead agency (e.g., USACE) prepares a biological assessment (BA) that analyzes whether the project is likely to adversely affect listed wildlife or plant species or their critical habitat, and proposes suitable avoidance, minimization, or compensatory mitigation measures. If the action would adversely affect the species, USFWS then has 135 days to conduct formal consultation and respond to the BA by issuing its Biological Opinion determining whether the project is likely to jeopardize the species or result in adverse modification of critical habitat. If a "no jeopardy" opinion is provided, the project may proceed. If a jeopardy or adverse modification opinion is provided, the USFWS may suggest "reasonable and prudent measures" that would result in no jeopardy.

Under Section 10 of the ESA, private parties with no federal nexus (i.e., no federal agency will authorize, fund, or carry out the project) may obtain an Incidental Take Permit to harm listed species incidental to the lawful operation of a project. To obtain an Incidental Take Permit, the applicant must develop a habitat conservation plan (HCP) which specifies effects to listed species, provides minimization and mitigation measures and funding, and discusses alternatives considered and the reasons why such alternatives are not being used. If the USFWS finds that the HCP will not "appreciably reduce the likelihood of the survival and recovery of the species" it will issue an Incidental Take Permit. Issuance of an Incidental Take Permit requires the USFWS to conduct an internal Section 7 consultation, thus triggering coverage of any listed plant species or critical habitat present on site (thus, listed plants on private property are pro-

tected under the ESA if a listed animal is present). Unlike a Section 7 consultation, the USFWS is not constrained by a time limit to issue an Incidental Take Permit.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703 through 711) (MBTA) is the domestic law that affirms, or implements, the United States' commitment to four (4) international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.'' (72 FR 31132; 50 CFR 22.3).

On November 10, 2009, USFWS implemented new rules (74 FR 46835) governing the "take" of golden and bald eagles. The new rules were released under the existing Bald and Golden Eagle Protection Act, which has been the primary regulation protection for unlisted eagle populations since 1940. All activities that may disturb or incidentally take an eagle or its nest as a result of an otherwise legal activity must be permitted by the USFWS under this act. The definition of disturb (72 FR 31132) includes interfering with normal breeding, feeding, or sheltering behavior to the degree that it causes or is likely to cause decreased productivity or nest abandonment.

On February 18, 2011, the USFWS published their *Draft Eagle Conservation Plan Guidance* (USFWS, 2011a) in the Federal Register for public comment. The comment period ended on May 19, 2011. The *Draft Eagle Conservation Plan Guidance* was developed to provide guidance to wind developers and others applying for permits under the Bald and Golden Eagle Protection Act, as well as USFWS biologists who evaluate impacts to eagles from proposed wind energy projects.

BLM Sensitive Species

BLM Sensitive Species are species designated by the State Director that are not already Federally listed as endangered or threatened. The sensitive species designation is normally used for species that occur on BLM administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. Each State Office of the BLM maintains a list of special-status plant and wildlife species that are to be considered as part of the management activities carried out by the BLM on the lands that they administer.

California Desert Conservation Area Plan

The CDCA Plan of 1980 covers 25 million acres of land in southern and southeastern California, with 10 million acres being administered by the BLM. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA and is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality.

The multiple use classes comprise the backbone of the CDCA Plan, essentially zoning the CDCA into four (4) major use categories, as a city or county is zoned for land use classes. The CDCA Plan categories include four million acres of Class C (controlled) lands (including roughly 3,600,000 acres of wilderness areas created under the 1994 California Desert Protection Act) to be preserved in a natural state with access generally limited to non-motorized, non-mechanized means; four million acres of Class L (limited use) lands, providing for generally lower intensity, carefully controlled uses that do not significantly diminish resource values; 1.5 million acres of Class M (moderate use) lands designated for mining, livestock grazing, recreation, energy, and utility development with mitigation required for any damage caused by permitted uses; and 500,000 acres of Class I (intensive use) lands managed for concentrated uses with reasonable protection provided for sensitive natural values and mitigation of impacts and rehabilitation of impacted areas occurring when possible (BLM, 1999).

The Plan's goals and actions for each resource are established in its 12 elements including the Vegetation Element and the Energy Production and Utility Corridors Element, among several others (BLM, 1999). There have been amendments to the 1980 Plan, including the West Mojave Plan (WEMO). The AEWP falls within the planning boundaries of the WEMO, which is described below.

West Mojave Plan (WEMO)

The WEMO is a Habitat Conservation Plan (HCP) pursuant to the federal ESA and an approved amendment to the CDCA Plan covering over 9 million acres in five (5) counties with the purpose of creating a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel, and nearly 100 other sensitive species, as well as the natural communities in which they reside. The 9,359,070-acre planning area includes 3,263,874 acres of BLM-administered public lands; 3,029,230 acres of private lands; and 102,168 acres of lands administered by the State of California within portions of Inyo, Kern, Los Angeles, and San Bernardino counties.

In March 2006 the BLM issued a Record of Decision (ROD) for the WEMO Final Environmental Impact Statement (BLM, 2006). However, the ROD addressed only the BLM's amendment to the CDCA Plan, and it did not include actions proposed by State and local governments for non-federal lands. The HCP has not been completed and would require greater specificity for local governments to obtain incidental take permits under the State and federal ESAs.

The WEMO area in Kern County begins at the intersection of Kern, Inyo, and San Bernardino Counties northeast of Ridgecrest, California. The area follows the Sierra Nevada Mountain Range to the southwest and continues to the Tehachapi Mountains and then to the Los Angeles County line east-northeast of Quail Lake. The AEWP falls within the boundaries of the WEMO; however, private lands within the project area are currently not subject to the WEMO as it has not yet been adopted for lands not administered by the BLM. However, BLM lands within the project area are subject to the provisions of the WEMO as an amendment to the CDCA Plan.

Lacey Act, as amended (16 USC 3371-3378)

This Act protects plants and wildlife by creating civil and criminal penalties for a wide variety of violations including illegal take, possession, transport or sale of protected species.

Executive Order 13212 – Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use

Approved on May 18, 2001, Executive Order 13212 directs federal agencies involved in reviewing energy-related projects to streamline their internal approval processes and establish an interagency task force to coordinate federal efforts at expediting approval mechanisms. The interagency task force will be established to monitor and assist the agencies in the efforts to expedite their review of permits or similar actions, as necessary, to accelerate the completion of energy-related projects, increase energy production

and conservation, and improve transmission of energy. This task force also shall monitor and assist agencies in setting up appropriate mechanisms to coordinate federal, State, tribal, and local permitting in geographic areas where increased permitting activity is expected.

Draft Voluntary, Land-Based Wind Energy Guidelines

The USFWS has been working over the last decade to develop guidelines to assist in the planning and implementation of wind development projects in compliance with the federal ESA, MBTA, and Bald and Golden Eagle Protection Act. In July, 2003, the USFWS released a set of voluntary, interim guidelines for reducing adverse effects to fish and wildlife resources from wind energy projects. The USFWS Wind Turbine Guidelines Advisory Committee (WTGAC) was then established to revise the guidelines in light of public comments and new data from ongoing studies. On March 4, 2010, the WTGAC submitted their *Recommended Guidelines – Recommendations on developing effective measures to mitigate impacts to wildlife and their habitats related to land-based wind facilities* (Recommendations) (USFWS, 2010) to the Secretary of the Interior. The WTGAC guidelines include both policy recommendations and recommended voluntary guidelines for siting and operating wind energy projects in order to avoid or minimize potential impacts to wildlife (especially migratory birds and bats) and habitat. The USFWS convened an internal working group to review the Recommendations and develop voluntary draft "land-based" wind energy guidelines that consider the Recommendations. These land-based guidelines were released on February 8, 2011 as the *Draft Voluntary, Land-Based Wind Energy Guidelines* (Draft Guidelines) (USFWS, 2011e) and were published in the Federal Register on February 18, 2011. The Draft Guidelines were open to public comment for 90 days until May 19, 2011.

The Recommendations and the Draft Voluntary Guidelines are founded upon a "tiered approach" for assessing potential impacts to wildlife and their habitats. The tiers are summarized as follows:

- Tier 1 – Preliminary evaluation or screening of potential sites (landscape-level screening of possible project sites)
- Tier 2 – Site characterization (broad characterization of one (1) or more potential project sites)
- Tier 3 – Pre-construction monitoring and assessments (site-specific assessments at the project site)
- Tier 4 – Post-construction monitoring studies (to evaluate direct fatalities and other impacts)
- Tier 5 – Research (to further evaluate direct and indirect effects, and assess how they may be addressed)

The Draft Voluntary Guidelines provide methods and metrics to help answer the questions posed at each tier, while recognizing the substantial variability that exists between project sites. Other elements in the Draft Guidelines include a full discussion of mitigation policies and principles; the applicability of adaptive management, including the potential use of operational modifications; and considerations related to cumulative impacts, habitat fragmentation, and landscape-level analysis (USFWS, 2011e).

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 U.S.C. 661 666) applies to any federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project Proponents are required to consult with the USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

Federal Clean Water Act (33 U.S.C. 1251 through 1376)

The CWA (33 U.S.C. 1251 et seq.) is intended to restore and maintain the quality and biological integrity of the nation's waters. It prohibits the discharge of pollutants into waters of the United States (WUS) without a National Pollutant Discharge Elimination System (NPDES) permit from the Environmental Protection Agency (EPA). By issuing NPDES permits, the EPA can regulate the discharge of pollutants to protect water quality.

Section 401 requires that a project proponent for a Federal license or permit that allows activities resulting in a discharge to waters of the United States must obtain a State certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Boards (RWQCBs) administer the certification program in California.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.

Section 404 of the CWA provides that whenever any person discharges dredged or fill material into waters of the U.S. (e.g., streams, wetlands, lakes, bays) a permit is required from the USACE. The USACE has issued 50 separate Nationwide Permits (NWPs) for different types of projects with impacts to wetlands (as of March 19, 2007). Depending on the level of impact, projects qualifying for an NWP may be required to provide the USACE with Pre-Construction Notification of the impacts and meet other restrictions. Projects with greater wetland impacts than those allowed under one of the NWPs require an Individual Permit. The process of obtaining an individual permit includes public notice and response to all comments received; the permit decision document includes a discussion of the environmental impacts of the project, the permit addresses public and private needs, alternatives to achieve project purposes if needed, and beneficial and/or detrimental effects of the project on public and private uses. In *SWANCC vs. ACOE*, the Supreme Court ruled that the jurisdiction of the USACE does not extend to isolated, intrastate, non-navigable waters and wetlands, such as vernal pools, ephemeral streams, and wetlands not associated with a stream channel. The USACE also authorizes activities that involve structures or work in or affecting navigable WUS under Section 10 of the Rivers and Harbors Act of 1899.

USACE issuance of a Section 404 permit triggers the requirement that a Section 401 certification also be obtained. In California, the RWQCBs issue this certification.

3.21.3.2 State Law and Regulations

California Environmental Quality Act

The CEQA was adopted in 1970 and applies to actions directly undertaken, financed, or permitted by State lead agencies. CEQA requires that agencies inform themselves about the environmental effects of their proposed actions, consider all relevant information, provide the public an opportunity to comment on the environmental issues, and avoid or reduce potential environmental harm whenever feasible. CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. Regulations for implementation are found in the State CEQA Guidelines published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects.

California Endangered Species Act

The California ESA establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Unlike the federal ESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to the federal ESA, and is prohibited for both listed and candidate species. Take authorization may be obtained by a Project Proponent from CDFG under California ESA Sections 2091 and 2081. Section 2091, like the federal ESA Section 7, provides for consultation between a state lead

agency under the CEQA and CDFG, with issuance of take authorization if the project does not jeopardize the listed species. Pursuant to Section 2081 of the California State Fish and Game Code, the CDFG may authorize individuals or public agencies to import, export, take, or possess, and State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or a Memorandum of Understanding (MOU) if: (1) the take is incidental to an otherwise lawful activity, (2) impacts of the authorized take are minimized and fully mitigated, (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) the Project Proponent ensures adequate funding to implement the measures required by the CDFG. The CDFG makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, is the responsibility of the CDFG to maintain viable populations of all native species. To that end, the CDFG has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Under Sections 3503 and 3503.5 of the California State Fish and Game Code, Project Proponents are not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey, taking or possessing of any migratory non-game bird as designated in the MBTA or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to California State Fish and Game Code Section 3800.

California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development

In October 2007, the California Energy Commission (CEC) and the CDFG released a voluntary guideline document to be used by lead agencies when siting and permitting wind projects in California: *California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development* (CEC and CDFG, 2007). As stated in the abstract for this document, "These voluntary guidelines provide information to help reduce impacts to birds and bats from new development or repowering of wind energy projects in California. They include recommendations on preliminary screening of proposed wind energy project sites; pre-permitting study design and methods; assessing direct, indirect, and cumulative impacts to birds and bats in accordance with State and federal laws; developing avoidance and minimization measures; establishing appropriate compensatory mitigation; and post-construction operations monitoring, analysis, and reporting methods."

3.21.3.3 Regional and Local Plans, Policies, and Regulations

The AEWP boundaries are located predominately within the Kern County General Plan with portions within the Mojave Specific Plan and Cache Creek Interim Rural Community Plan areas. The Cache Creek Interim Rural Community Plan does not contain policies specific to biological resources.

Kern County General Plan

The Kern County General Plan (KCGP) identifies the federal, State, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County (County) during the decision-making process for any project that could impact biological resources.

Land Use, Open Space, and Conservation Element. The Land Use, Open Space, and Conservation Element of the KCGP states that the element provides for a variety of land uses for future economic growth while also assuring the conservation of County's agricultural, natural, and resource attributes. Section 1.10, General Provisions, provides goals, policies, and implementation measures that apply to all types of discretionary projects.

Section 1.10.5 – Threatened and Endangered Species

Policies

- **Policy 27.** Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.
- **Policy 28.** County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.
- **Policy 29.** The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.
- **Policy 30.** The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, State, and federal programs concerning endangered species conservation issues.
- **Policy 31.** Under the provisions of CEQA, the County, as lead agency, will solicit comments from CDFG and USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.
- **Policy 32.** Riparian areas will be managed in accordance with USACE, and the CDFG rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

- **Implementation Measure Q.** Discretionary projects shall consider effects to biological resources as required by CEQA.
- **Implementation Measure R.** Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.
- **Implementation Measure S.** Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Section 1.10.10 – Oak Tree Conservation

Policies

- **Policy 65.** Oak woodlands and large oak trees shall be protected where possible and incorporated into project developments.
- **Policy 66.** Promote the conservation of oak tree woodlands for their environmental value and scenic beauty.

Implementation Measures

- **Implementation Measure KK.** The following applies to discretionary development projects (General Plan Amendment, zone change, conditional use permit, tract maps, parcel maps,

precise development plan) that contains oak woodlands, which are defined as development parcels having canopy cover by oak trees of at least 10 percent (10%), as determined from base line aerial photography or by site survey performed by a licensed or certified arborist or botanist. If this study is used in an Environmental Impact Report, then a Registered Professional Forester (RPF) shall perform the necessary analysis.

a. Development parcels containing oak woodlands are subject to a minimum canopy coverage retention standard of thirty percent (30%). The consultant shall include recommendations regarding thinning and diseased tree removal in conjunction with the discretionary project.

b. Use of aerial photography and a dot grid system shall be considered adequate in determining the required canopy coverage standard.

c. Adjustments below thirty percent (30%) minimum canopy standard may be made based on a report to assess the management of oak woodlands.

d. Discretionary development, within areas designated as meeting the minimum canopy standard, shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

- **Implementation Measure LL.** The following applies to development of parcels having oak tree canopy cover of less than 10 percent (10%), but containing individual oak trees equal to or greater than a 12-inch diameter trunk at 4.5 feet breast height.

  a. Such trees shall be identified on plot plans.

  b. Discretionary development shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

  c. Specified tree removal related to the discretionary action may be granted by the decision making body upon showing that a hardship exists based on substantial evidence in the record

Chapter 5. Energy Element – 5.2 Importance of Energy to Kern County

Policies

- **Policy 8.** The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.
- **Policy 9.** The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

Mojave Specific Plan

A portion of the eastern project area lies within the Mojave Specific Plan (MSP) boundaries. The MSP includes the following goals, objectives, policies, and implementation measures related to biological resources:

Land Use Element

Goals

- Improve and maintain distribution and compatibility of land uses.

Objectives and Policies

- **Objective 3.2.** Develop a balanced land use pattern to ensure that future growth provides a range of residential, employment, service, and recreational opportunities.
- Policy 3.2.2: Preserve areas with natural constraints and important natural or unique features for open space.

Conservation Element

Goals

- Promote conservation of vegetation and wildlife.

Objectives and Policies

- **Objective 4.4.** Maintain and promote the retention of natural settings and use of native or adaptable vegetation.
- Policy 4.4.1: Utilize the Resource Reserve (8.2) and Resource Management (8.5) Map Codes (as defined in Table 3-2), as well as the Cluster (CL) Combining District, to reduce the impacts of development on important ecological and biological resources.
- Policy 4.4.2: Develop active open space uses in an ecologically sensitive manner.
- Policy 4.4.3: For development projects that are located outside the identified urbanized non-sensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources, a biological survey shall be conducted. Alternatively, a project applicant may demonstrate urbanized, non-sensitive status through the identification of applicable studies.
- Policy 4.4.4: Encourage the preservation of Joshua trees, Joshua tree woodlands, known wildflower displays, or other biologically sensitive flora determined during biological surveys.

Open Space Element

Goals

- Ensure compatibility between development and large areas of Resource Management designated land.

Objectives and Policies

- **Objective 5.2.** Ensure that development expands without adversely impacting significant natural resources on lands within the Resource Management designation.
- Policy 5.2.5. To conserve open space, the Resource Management, Resource Reserve, and Mineral and Petroleum designations will continue to apply to outlying areas where infrastructure and public services are not provided or where significant biological or mineral resources exist.

Implementation Measures

— *Minimizing Land Use Conflicts*

- **Implementation Measure C-6: Biological Resources.** Implement the following measures to preserve biological resources in developing portions of the Specific Plan Area:

  a) Require a biological survey to be conducted in non-urbanized sensitive areas (not developed, not previously developed, or not previously mitigated) with potentially significant biological resources.

b) For development projects that are located outside the identified urbanized non-sensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources, a biological survey shall be conducted. A qualified biologist shall be consulted to conduct protocol surveys and evaluations of rare, threatened, or endangered species. Sensitive species may also be considered during surveys. If rare, threatened, or endangered species are found during the surveys, the biologist will consult with the California Department of Fish and Game, the U.S. Fish and Wildlife Service, or other agencies and jurisdictions with authority to implement and enforce requirements of the California or U.S. Endangered Species Acts, prior to ground disturbance. Determination of significant impact from the biologist shall include recommendations of mitigation measures to preserve or protect habitat and to otherwise ensure protection of identified species. Copies of all surveys, evaluations, and biological reports, issued as a result of said consultation shall be submitted to the Planning Department.

c) All development within the area identified as the urbanized nonsensitive area (Figure 4-2 within the Mojave Specific Plan) for biological resources shall have the following measures applied to discretionary approvals and implementation of the plan and amendments to the plan, zone changes, conditional use permits and land divisions.

1. Unleashed dogs shall not be allowed on the project site during construction.
2. All trash is to be contained on site in covered containers. The work site is to be cleared daily of garbage and debris related to food.
3. Vegetation should not be removed ahead of issuance of a grading permit or development.
4. When appropriate, on-site vegetation, including Joshua trees, should be incorporated into project design rather than removed.
5. Construction personnel shall receive education on proper protocol, as formulated by the U.S. Fish and Wildlife Service, if a desert tortoise is discovered on site.

Related Policies: 4.4.2, 4.4.3, 4.4.4, 4.4.5

- **Implementation Measure C-7: West Mojave Habitat Conservation Plan.** If the West Mojave Habitat Conservation Plan is adopted by the Kern County Board of Supervisors, compliance with that Plan will constitute mitigation of potentially significant biological resources.

Related Policies: 4.4.4, 4.4.5

Zoning Ordinance of Kern County (Title 19 of the Ordinance Code of Kern County)

Chapter 19.64 Wind Energy (WE) Combining District

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to biological resources issues related to the project.

- **Section 19.64.120(A):** No landscaping required in connection with wind-driven electrical generators.
- **Section 19.64.140(B):** Towers and blades shall be painted a non-reflective, unobtrusive color or have a non-reflective surface.
- **Section 19.64.140(C):** Fencing shall be erected for each wind machine or on the perimeter of the total project. Wind project facilities shall be enclosed with a minimum four- (4-) foot-high security fence constructed of four (4) strand barbed wire or materials of a higher quality.

Fencing erected on the perimeter of the total project shall include minimum eighteen- (18-) inch by eighteen- (18-) inch signs warning of wind turbine dangers. Such signs shall be located a maximum of three hundred (300) feet apart and at all points of site ingress and egress. Where perimeter fencing is utilized, the Planning Director may waive this requirement for any portion of the site where unauthorized access is precluded due to topographic conditions.

- **Section 19.64.140(D):** All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting "tie-ins" to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of this provision, engineered aboveground electrical power lines shall be allowed.
- **Section 19.64.140(H):** All wind projects including wind generators and towers shall comply with all applicable County, State, and federal laws, ordinances, or regulations.
- **Section 19.64.140(K):** Prior to the issuance of any grading permit, a plan for the mitigation of potential soil erosion and sedimentation shall be prepared by a registered civil engineer or other professional and submitted for the approval by the Director of the Engineering, Surveying, and Permit Services Department. The plan shall include provisions for site revegetation, including any necessary re-soiling, proposed plant species, proposed plant density and percentage of ground coverage, and the methods and rates of application and shall include sediment collection facilities as may be required by the Engineering, Surveying, and Permit Services Department.

  The soil erosion and sedimentation control plan shall be consistent with the applicable requirements of the California Regional Water Quality Control Board pertaining to the preparation and approval of Storm Water Pollution Prevention Plans. Notwithstanding the foregoing, the revegetation portion of the soil erosion and sedimentation plan shall be prepared by a professional biologist or other professional approved, in advance, by the Engineering, Surveying, and Permit Services Department.

  The plan shall include a timetable for full implementation, estimated costs, and a surety bond or other security as approved by the Engineering, Surveying, and Permit Services Department in an amount determined by that department to guarantee plan implementation. The soil erosion and sedimentation control plan, including the revegetation plan and security instrument, shall be submitted to, and approved by, the Floodplain Management Section of the Engineering, Surveying, and Permit Services Department prior to the issuance of any grading permit. The security shall remain on file with the Engineering, Surveying, and Permit Services Department until that department has verified that the plan has been successfully implemented.
- **Section 19.64.140(L):** A minimum of on-site roadways shall be constructed. Temporary access roads utilized for initial machine installation shall be revegetated to a natural condition after completion of machine installation. The Project Proponent shall submit a plan of all proposed roads, temporary and permanent, for approval by the Planning Director prior to the issuance of any building permits.
- **Section 19.64.140(M):** Construction of any slopes steeper than four to one (4:1) shall be prohibited unless specifically authorized by the Kern County Planning Department and mitigation is provided.
- **Section 19.64.140(N):** Wind project facilities shall be encircled with a ten- (10-) foot-wide fuel break. Subject fuel breaks may be installed for each wind machine or the perimeter of the total project, but in no event shall encompass more than forty (40) acres per block. Permanent access roads may also be considered fuel breaks. This requirement may be modified at the discretion of the Kern County Fire Chief.

3.22 Wild Horses and Burros

The BLM manages wild horses and burros under the Wild Free-Roaming Horse and Burro Act of 1971 (WHBA). This includes the management of Herd Areas (HA) and Herd Management Areas (HMAs). HAs are the geographic areas where wild horses and/or burros were found at the passage of the WHBA. HMAs are the areas within HAs where the decision has been made, through Land Use Plans, to manage for populations of wild horses and/or burros. California contains 33 HAs and 22 HMAs (BLM, 2011h). According to the BLM's Geocommunicator, there are no HAs or HMAs located within or adjacent to the proposed AEWP site or ROW application area (BLM, 2011i and 2011j). The nearest HAs are the Kramer HA located 38 miles southeast of the AEWP site in the northeast portion of San Bernardino County; the Centennial HA is 42 miles northeast of the proposed Alta East Wind Project (AEWP) site and is located within Kern, San Bernardino, and Inyo Counties; and the Slate Range HA is 50 miles northeast of the proposed AEWP site and is located within the San Bernardino and Inyo Counties. The Centennial HMA is 58 miles northeast of the AEWP site, located within Inyo County. As a result, the proposed AEWP site would not contain or traverse any established HAs or HMAs and would not result in impacts to wild horses and burros. Therefore, an analysis of such impacts for this Project is not required.