DRAFT

Environmental Impact Statement
for the
Campo Wind Project with Boulder Brush Facilities

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADI	area of direct impacts
APE	area of potential effect
AU	animal unit (grazing)
AUM	animal unit month
BIA	Bureau of Indian Affairs
BMP	best management practice
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CEPA	Campo Environmental Protection Agency
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRFPD	Campo Reservation Fire Protection District
dB	decibel
dBA	A-weighted decibel
ECCS	Electrical Collection and Communication System
EIS	Environmental Impact Statement
EMF	electromagnetic field
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FTA	Federal Transit Administration
gen-tie line	generation transmission line
GHG	greenhouse gas
gpd	gallons per day
GWP	global warming potential
HCM	Highway Capacity Manual
HMMP	Hazardous Materials Management Plan
Hz	hertz
I	Interstate
JCSD	Jacumba Community Services District
KOP	key observation point
kV	kilovolt
LCU	landscape character unit
L_{dn}	day/night noise level
L_{eq}	equivalent continuous sound level
LOS	level of service
MCL	maximum contaminant level
met	meteorological

Acronym/Abbreviation	Definition
MM	Mitigation Measure
MT	metric ton
MW	megawatt
MWh	megawatt-hour
NEPA	National Environmental Policy Act
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSLU	noise-sensitive land use
O_3	ozone
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PCE	passenger car equivalent
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PPV	peak particle velocity
Project	Campo Wind Project with Boulder Brush Facilities
PTC	production tax credit
REC	recognized environmental condition
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SDAB	San Diego Air Basin
SDG&E	San Diego Gas & Electric Company
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
TDS	total dissolved solids
TMDL	total maximum daily load
USFWS	U.S. Fish and Wildlife Service
VIA	Visual Impact Assessment
WRRS	Worker Response Reporting System

CHAPTER 1
INTRODUCTION

This chapter addresses the purpose and need for the proposed action evaluated in Chapter 4 of this Environmental Impact Statement (EIS) and describes the scope of this document. Additionally, this chapter briefly provides background information regarding the proposed action, including applicable federal, state, and Tribal laws and regulations. This information is provided pursuant to 40 CFR 1502.13.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The proposed action consists of Bureau of Indian Affairs (BIA) approval of a 25-year lease of land (with the possibility of a 13-year extension) between the Campo Band of Diegueño Mission Indians (Tribe) and Terra-Gen Development Company LLC (Terra-Gen), the developer, on the Campo Indian Reservation (Reservation) (Campo Lease). The proposed action would authorize the Campo Lease, allowing Terra-Gen to develop, construct, operate, maintain and ultimately decommission a renewable energy generation facility (Campo Wind Facilities) on land within the Reservation. The "Campo Wind Project with Boulder Brush Facilities" or "Project" for short, consists of both the Campo Wind Facilities located on land within the Reservation Boundary (or Campo Boundary) and the Boulder Brush Facilities which are located on adjacent private lands (see Appendix E, Figure 1-1). Throughout this document, the term "On-Reservation" refers to anything within the Reservation Boundary while the term "Off-Reservation" refers to anything outside of the Reservation Boundary, including the Boulder Brush Boundary. Additional details regarding the Project components and construction can be found in Appendix B, Project Description Details, to this EIS. The BIA is the National Environmental Policy Act (NEPA) lead agency for this Project.

The purpose and need for the BIA's proposed action is to authorize the Tribe's lease of trust land consistent with federal laws and regulations governing the leasing of tribal trust lands and the federal trust responsibility to tribes. Federal law states that the Secretary of the Interior may approve leases of trust lands for a variety of uses including public, religious, educational, recreational, residential, or business purposes. Prior to approval of any lease, the Secretary of the Interior is required to first determine that adequate consideration has been given to the factors in 25 USC 415(a). Further information regarding Project components and the regulations implementing 25 USC 415 are located in 25 CFR, Part 162. According to Part 162, in reviewing a proposed lease, the BIA will defer to the landowners' determination that the lease is in their best interest to the maximum extent possible.

In addition, the leasing of tribal trust lands furthers tribal interests, including economic development, revenue, tribal governance, and self-determination. Approval of the proposed lease will satisfy several needs/interests, including improving the economic conditions of the Tribe through lease revenue and job creation, and utilizing the renewable resource (wind).

An additional purpose in considering approval of the Tribe's proposed lease is to increase national and tribal renewable energy sources to increase federal energy independence and decrease greenhouse gas emissions as encouraged by federal law and required by California law, including the Energy Policy Act

of 2005, Executive Order 13212 ("Actions to Expedite Energy-Related Projects"), Secretarial Order 3285A1 ("Renewable Energy Development by the Department of the Interior"), and California's Renewables Portfolio Standard and Senate Bill 100, which together require California's energy supply to be from carbon-free sources by 2045. Wind has been identified as the most available and easily attainable renewable resource on the Reservation to provide renewable energy for existing and future regional electricity demands.

1.2 PROJECT BACKGROUND

The Campo Band of Diegueño Mission Indians is part of the Kumeyaay Nation, whose lands historically reached from northern San Diego County to the dunes of the Imperial Valley, and south beyond Ensenada, Mexico. The existing Kumeyaay reservations, including the Campo Indian Reservation, were created between 1875 and 1893. The Reservation originally consisted of about 280 acres. Today, the Tribe occupying the Reservation consists of 327 members on more than 16,000 acres of land. The Reservation is governed under the authority of the Campo Constitution, which was passed by the Tribal community on July 13, 1975. Lawmaking authority under the Campo Constitution is exercised by the General Council, which consists of all adult members of the Tribe. The Tribal government, represented by a seven-member Executive Committee, is responsible for overseeing various services provided to the Reservation community, including health, education, fire protection, environmental protection, and housing.

1.3 APPLICABLE FEDERAL, STATE, AND TRIBAL LAWS AND REGULATIONS

Applicable laws, regulations, and guidance are further detailed in Appendix C to this EIS. Federal laws and regulations applicable to the proposed Project that are described in Appendix C include BIA lease regulations; NEPA; the Endangered Species Act; the U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines (USFWS 2012); the Migratory Bird Treaty Act; the Bald Eagle and Golden Eagle Protection Act; the Clean Water Act; the Clean Air Act; the National Historic Preservation Act; the Archaeological Resources Protection Act; the Antiquities Act of 1906; the Native American Graves Protection and Repatriation Act; the Noise Control Act; and Executive Orders 11988 (Floodplain Management), 11990 (Protection of Wetlands), and 13112 (Invasive Species). Under the terms of the lease, certain Tribal laws apply to the Lessee, including certain provisions of the Tribe's Tax Ordinance and Tribal Employment Rights Ordinance. Appendix C discusses Tribal authorities including the Campo Environmental Protection Agency (CEPA) statutes, the Campo Band of Diegueño Mission Indians Land Use Code (Land Use Code), and the Campo Band of Diegueño Mission Indians Land Use Plan (Land Use Plan).

1.4 ENVIRONMENTAL IMPACT STATEMENT PROCESS AND SCOPE

This EIS has been prepared to meet the requirements of NEPA (42 USC 4321), the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500–1508), the U.S. Department of the Interior's NEPA regulations (40 CFR Part 46), and the BIA NEPA handbook (59 IAM 3-H).

The first formal step in the preparation of an EIS is the publication of a Notice of Intent (NOI) to prepare an EIS. The BIA published the NOI for this proposed action in the Federal Register on November 21, 2018. The NOI described the proposed action and identified the reasons for the preparation of an EIS. The NOI also initiated the scoping process and published information on public scoping meetings and opportunities to comment on the scope of the EIS. The NOI invited the public to attend a public scoping meeting, which was held on December 6, 2018. The meeting was held on the Reservation at the Tribal Hall. A total of 27 people attended the scoping meeting. The meeting began with a brief presentation summarizing the Project and the NEPA process. Attendees then provided timed oral comments recorded by a court reporter, a transcript of which is included in the Scoping Report provided as Appendix A to this EIS.

Information regarding the public scoping meeting was submitted to the following two newspapers in advance of the meetings:

- San Diego Union Tribune (November 21, 2018, publication date) – 15 days in advance
- San Diego Business Journal (submitted November 21, 2018, published for the week of November 26, 2018) – 10 days in advance

The purpose of the NOI and scoping meeting was to provide public notification that the BIA planned to prepare an EIS and to solicit input on the scope and content of the EIS. The NOI was circulated with comments being accepted for a 30-day scoping period, which closed on December 21, 2018. In addition, the BIA accepted letters submitted during the Federal government shutdown, through January 25, 2019. The scope of this EIS covers the range of environmental issues addressed, the types of effects considered, and the alternatives analyzed. The EIS presents an analysis of reasonable alternatives and the potential impact those alternatives would have on the natural and human environment. The EIS scoping process is designed to provide an opportunity for the public and other federal, state, and local agencies to help determine the scope of the EIS.

Review of the proposed action by the following agencies is necessary as part of the environmental review processes: U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and U.S. Environmental Protection Agency.

Coordination with these agencies was undertaken throughout the EIS process and necessary analyses for their respective reviews have been integrated into the EIS process. CEPA and the County of San Diego (County), as cooperating agencies, were notified of the NOI and scoping meeting, and attended the scoping meeting.

1.5 ENVIRONMENTAL IMPACT STATEMENT SCHEDULE, PUBLIC REVIEW, AND DECISION TIMING

This Draft EIS is available for public review starting in May 24, 2019. The public review period for the Draft EIS will be 45 days. A public meeting on the Draft EIS will be held during the review period and noticed at least 15 days prior. The Final EIS is expected to be available for review in 2019. A decision on the Project may be made by the BIA 30 days after the Final EIS is filed.

This EIS is not a decision document. The purpose of the EIS is to document the potential environmental, social, and economic consequences of constructing and operating the Project and alternatives.

The EIS is issued in draft form for public review and comment. The BIA will consider all comments and other relevant information received during the comment period and will subsequently issue a Final EIS.

After a minimum of 30 days following publication of the U.S. Environmental Protection Agency's Notice of Availability of the Final EIS in the Federal Register, the BIA will issue a Record of Decision. The Record of Decision will document the decision to approve or disapprove the proposed action, which would enable implementation of the Project. Decisions by other jurisdictions to issue approvals related to the Project may be aided by the disclosure of potential impacts found in the EIS.

CHAPTER 2
PROJECT DESCRIPTION AND ALTERNATIVES

This chapter describes the development of a range of alternatives and provides descriptions of the alternatives evaluated in this Draft EIS for the Campo Wind Project (Project), which includes the Campo Wind Facilities and the Boulder Brush Facilities. Per the Code of Federal Regulations and in compliance with Council on Environmental Quality regulations for implementing the NEPA (40 CFR 1502.14), the following alternatives are evaluated in this EIS:

- Alternative 1: Full Build-Out Alternative – Approximately 252 MW (Alternative 1: Approximately 252 MW)
- Alternative 2: Reduced Intensity Alternative – Approximately 202 MW (Alternative 2: Approximately 202 MW)
- No Action Alternative

This chapter also identifies alternatives that were previously considered but eliminated from further consideration because they are not reasonable or feasible, or because they would not adequately meet the purpose and need for the proposed action. Finally, this chapter provides a comparison of the alternatives evaluated in this EIS. NEPA requires identification of the "Agency Preferred Alternative," which may or may not be the "Environmentally Preferred Alternative." The Environmentally Preferred Alternative is the one with the least significant impacts to biological resources and the physical environment. The Agency Preferred Alternative may be identified by the NEPA lead agency in either the Draft EIS or Final EIS. The Final EIS will identify the Agency Preferred Alternative with any adjustments that have occurred in response to public and agency review and comments. If the Agency Preferred Alternative differs from the proposed action, both will be identified in the Final EIS.

Completion of the Final EIS, followed by a Record of Decision to approve the lease, signed by the BIA, would permit the Tribe to advance the Project to the construction phases. In addition, the Final EIS supports decisions associated with the Campo Lease for the Campo Wind Facilities on the Reservation. This EIS can

also be used to support the Off-Reservation, Boulder Brush Facilities, which are subject to Major Use Permit (MUP) requirements by the County; therefore, approval of that action is necessary prior to construction of the Boulder Brush Facilities.

2.1 DEVELOPMENT OF A RANGE OF ALTERNATIVES

Each of the alternatives described in this chapter, with the exception of the No Action Alternative, would achieve the generation of electricity from wind turbines installed by Terra-Gen on the Reservation. Wind has been identified as the most available, valuable, and attainable renewable resource on the Reservation. The alternatives identify different electricity generation capacities and include consideration of different numbers of wind turbines. The alternatives propose a varying number of wind turbines to be constructed and installed, resulting in modifications to the turbine layout, as depicted on Figure 2-1A, Alternative 1 Project Layout, and Figure 2-1B, Alternative 2 Project Layout, and specific turbine designs as depicted on Figure 2-2, Typical Wind Turbine Specifications (all figures provided in Appendix E of this EIS), and described in Section 2.2, Features Common to Each Design Alternative. These are based on topography and preliminary design information, and locations may change slightly based on engineering feasibility, micro-siting, and consideration of environmental effects during the analysis process.

The Campo Wind Facilities, which include the construction and operation of 60 wind turbines and associated infrastructure, would be located within a corridor of approximately 2,200 acres of land (Campo Corridor) within the approximately 16,000 acres under the jurisdiction of the Reservation (Reservation Boundary or Campo Boundary). The Boulder Brush Facilities, which would consist of the portion of the gen-tie line and related facilities to connect energy generated by the Project to the existing San Diego Gas & Electric Company (SDG&E) Sunrise Powerlink, would be located within a corridor of approximately 500 acres of land (Boulder Brush Corridor) consisting of private leased parcels adjacent to the northeast portion of the Reservation. These private parcels are under the land use and permitting jurisdiction of the County. Collectively, the Campo Corridor and the Boulder Brush Corridor comprise the approximately 2,700-acre Project Site which is the subject of this analysis. Disturbances within the Project Site would be less than 2,700 acres. Adjustments to the locations of Project components within the Project Site to accommodate micro-siting constraints, such as geologic conditions or sensitive resources would be accounted for in the analysis for impacts.. In addition, the physical disturbance required to install the number of turbines necessary to generate the identified capacity of approximately 252 megawatts (MW) (60 approximately 4.2 MW turbines) or approximately 202 MW (48 approximately 4.2 MW turbines) would be less.

2.2 FEATURES COMMON TO EACH DESIGN ALTERNATIVE

2.2.1 Components Common to Each Design Alternative

Each of the proposed design alternatives for the Project would include the design components listed below. The Campo Wind Facilities, identified below, are discussed in corresponding Sections A thru J below while the Boulder Brush Facilities are fully discussed in Section K below. Additional

details regarding the Project components and construction can be found in Appendix B, Project Description Details, to this EIS.

A. Wind turbines
B. Access roads
C. Electrical Collection and Communication System
D. Collector Substation
E. Operations and maintenance (O&M) facility
F. Meteorological towers
G. Water collection and septic systems
H. Temporary concrete batch plant for use during construction
I. Temporary staging and parking areas for use during construction
J. On-Reservation gen-tie line
K. Boulder Brush Facilities

A. Wind Turbines

The Project would include installation of wind turbines within the Campo Corridor on the Reservation, although the number of turbines varies by alternative. Since wind turbine technology is continually improving, and the cost and availability of specific types of turbines varies from year to year, final Project specifications are not available; however, the following elements are representative for turbines that would be used for the Project:

- Wind turbines rated approximately 4.2 MW in nameplate capacity per turbine[1]
- Multiple tubular steel tower sections forming the towers
- Rotor diameter – up to approximately 460 feet (approximately 230-foot-long blades)[2]
- Foundation pedestal – approximately 20 feet diameter and 6 inches above grade
- Hub height – up to approximately 374 feet[3]
- Total height of turbine (highest point) – up to approximately 586 feet

Wind turbines would consist of three main physical components that are manufactured off site and assembled and erected On-Reservation during construction: the tower (composed of multiple sections),

1 Nameplate capacity is the maximum output, commonly expressed as megawatts that a turbine can supply to system load, adjusted for ambient conditions. The nameplate capacity is usually on a nameplate physically attached to the turbine.
2 A rotor consists of the three blades plus the hub, which is the connection point of the blades to the nacelle.
3 Hub height is the height of the horizontal axis of rotation of the blades.

the nacelle (generator), and the rotor, which consists of three blades mounted on a hub (see Figure 2-2 (in Appendix E to this EIS)). All proposed turbines would be three-bladed, upwind, horizontal-axis wind turbines. Each turbine would be mounted on a concrete pedestal (approximately 20 feet in diameter and 6 inches above grade) supported by a permanent concrete foundation (approximately 70 feet in diameter and 10 feet deep). Each turbine would have a rotor and nacelle mounted on top of its tubular tower.[4]

Wind turbines can operate 24 hours a day, 7 days a week. Blades typically begin to rotate and turbines begin to generate power in winds as low as 6.7 miles per hour, referred to as the cut-in speed, and are designed to operate in wind speeds up to approximately 56 miles per hour, referred to as the cut-out speed. At wind speeds faster than 56 miles per hour, blades rotate parallel to the wind (blades are fully feathered) and the wind turbine stops producing electricity. Turbines can withstand sustained wind speeds of more than approximately 100 miles per hour.

The developer would implement a lighting plan in accordance with Federal Aviation Administration (FAA) standards (FAA 2016). All turbines would be designated for lighting with medium-intensity, dual red or white synchronously flashing lights for nighttime use and daytime use, if needed. A low-voltage, shielded light on a motion sensor would be installed at the entrance door to each wind turbine at the base of the turbine tower for security purposes.

B. Access Roads

Where feasible, the existing network of On-Reservation permanent roads would be used to access the Campo Wind Facilities during construction. In addition to the existing roads, additional new roads would be constructed within the Campo Corridor on the Reservation to provide access and circulation. Access road layout is similar for each alternative and would involve approximately 15 miles of new roads. All of these roads, existing and new, are anticipated to be used for access to the Campo Wind Facilities over the life of the Project. Existing roads would be improved to accommodate construction equipment delivery and access. It is anticipated that approximately 15 miles of existing roads on the Reservation would need to be widened up to 40 feet during construction and reduced to 24 feet after construction. Likewise, the width of the new roads would be up to 40 feet during construction and then reduced to 24 feet after construction. Access roads to generation transmission (gen-tie) line structures would be approximately 16 feet wide.

Upon completion of construction, all new roads more than 24 feet wide would be reduced to approximately 24 feet wide, and the edges of the existing roads would be restored, and existing road widths would be returned to pre-construction widths. Along both sides of new access roads, a 6-foot-wide vegetation management area would be maintained. Access roads would be constructed of native soils with decomposed granite and gravel, or similar suitable materials, to provide access in nearly all weather conditions. All roads would be constructed or upgraded in accordance with industry standards.

[4] The nacelle is the component of the wind turbine that houses the main mechanical components that drive the blades.

C. Electrical Collection and Communication System

The turbines would be connected to the Collector substation through a 34.5 kV underground Electrical Collection and Communication System (ECCS). Depending on the turbine model selected, the electric energy produced by each wind turbine would be conducted through cables to either a transformer located inside the nacelle or through cables running down the inside of the wind turbine tower and through an underground conduit to a pad-mounted transformer that would sit approximately 10 feet from the base of the turbine on a separate foundation pad. The pad-mounted transformers would be approximately 6.5 feet tall by 7 feet wide by 8.5 feet deep. The turbine transformer would transform power from the turbine output voltage to 34.5 kV. The 34.5 kV side of the transformer would be connected to the underground ECCS. Generated electricity would move through approximately 28 miles of the underground ECCS within the Campo Corridor on the Reservation to the Collector substation. Power and communication cables would be buried in trenches a minimum of 4 feet deep. There would be three cable conductors, one grounding wire and one fiber optic cable installed per trench. Up to a 40-foot-wide temporary disturbance area would be necessary, but no permanent disturbance would occur.

In certain, limited areas, undergrounding of the ECCS may not be feasible due to solid rock, large boulders, or subsurface resources. In these instances, overhead circuits would be supported on steel/concrete monopoles up to 60 feet in height that would be spaced approximately 450 feet apart.

D. Collector Substation

The underground ECCS would be routed to a new Collector substation located centrally within the Campo Corridor on the Reservation. This Collector substation would be located in a yard approximately 1 acre in size. Transformer and switching equipment within the Collector substation would be approximately 25 feet tall. Figure 2-3, Typical Substation Design (see Appendix E), shows a typical layout design for a substation. Lighting at the Collector substation would be provided for safety and security purposes. The Collector substation would be enclosed by an 8-foot-tall chain-link fence with locked gates. The Collector substation would contain the main transformer for the Project and circuit breakers for each of the underground ECCS circuits. Electricity from the ECCS at 34.5 kV would flow into the circuit breakers, be transformed by the transformer up to 230 kV, and then be conducted out of the Collector substation for delivery via the gen-tie line.

E. O&M Facility

An O&M facility would be located within one of the two temporary central staging areas within the Campo Corridor on the Reservation. The facility would include a 1.5-acre parking and equipment storage area and a pre-fabricated structure (see Figure 2-4, O&M Facility, provided in Appendix E). The O&M facility would contain monitoring and control equipment. Amenities would include a main building with offices, spare parts storage, restrooms, a shop area, outdoor parking facilities, a turnaround area for larger vehicles, outdoor lighting, and gated access with partial or full perimeter fencing. The O&M facility would require

a potable water source for approximately 210 gallons per day (gpd) of demand for employee uses. A parking area for O&M staff and a staging area would also be located within the fenced, access-controlled O&M facility site. The facility would normally be staffed by up to 12 personnel on a daily basis. A septic system is proposed to provide sewer service to the O&M facility during operation. Estimated water use and wastewater generation would be approximately 210 gpd each.

F. Meteorological Towers

Up to three, permanent meteorological (Met) towers would be constructed within the Campo Corridor on the Reservation to monitor and record weather conditions and to perform power performance testing of the wind turbines. The height of these Met towers would equal the hub height of the wind turbines to be installed. They would be un-guyed, self-supporting, lattice structures mounted on an approximately 26 feet by 26 feet concrete foundation. The Met towers would be enclosed within an approximately 50 feet by 50 feet perimeter by an 8-foot-tall chain-link fence with locked gates. Lighting for the Met towers would consist of marker lighting pursuant to FAA requirements, and would employ strobed, minimum-intensity lights as recommended by the U.S. Fish and Wildlife Service (USFWS 2016).

Up to six, temporary Met towers would also be erected within the Campo Corridor on the Reservation as part of the Project's wind turbine power curve testing campaign that would occur prior to commercial operations. These temporary Met towers would be constructed atop targeted wind turbine locations (after site grading but prior to the erection of those wind turbines) to collect turbine site specific wind data that would be used to calibrate these locations prior to performing power curve testing. The height of these Met towers would also equal the hub height of the wind turbines to be installed and would be equipped with applicable FAA-compliant marking and lighting for aviation safety. The temporary Met towers would be guyed-lattice towers constructed atop a relatively smaller, temporary concrete foundation. These Met towers would be removed prior to the erection of the turbines and upon collecting sufficient, site-specific wind data.

Each Met tower would have instrument booms and cabling for all meteorological instruments, ladders, FAA lighting, and other instruments that may be required. The permanent Met towers would initially be powered by a battery/solar panel combination installed at the base of each tower. Once the Project has reached commercial operation, the permanent Met towers would be supplied power and fiber optic cabling from the nearest turbine so that the SCADA could collect the data from the tower. A dedicated road would provide access to each permanent Met tower from the nearest Project road access point. Meteorological instruments would be mounted on both the permanent and temporary Met towers at various heights, up to the top of each tower.

G. Water Collection and Septic Systems

The approximately 210 gpd O&M facility water demand during the Project's operations would be serviced via connection to existing On-Reservation facilities in the vicinity, generally consistent with the connection and sizing necessary for a single-family home.

Water demand during construction would total approximately 173 acre-feet (AF). Water sources during construction would include On- and Off-Reservation facilities, such as the production wells on the southern end of the Reservation and commercially obtained non-potable water from permitted Off-Reservation purveyors such as Jacumba Community Services District (JCSD) and Padre Dam Municipal Water District (PDMWD).

H. Temporary Concrete Batch Plant for Use during Construction

A temporary concrete batch plant would be established to mix the necessary concrete for foundations of the turbines, Met towers, substations, transmission poles, and O&M facility. The concrete batch plant would occupy an area of approximately 400 feet by 400 feet, or 3.7 acres, within the Campo Corridor on the Reservation. The concrete batch plant would consist of a mixing plant, areas for aggregate and sand stockpiles, driveways, truck load-out area, and turnaround(s). The concrete batch plant would include cement storage silos, water and mixture tanks, aggregate hoppers, conveyors, and augers to deliver different materials to the mixing plant. The batch plant would be located just off an access road.

I. Temporary Staging and Parking Areas for Use during Construction

Temporary staging areas have two uses: as central staging and turbine staging. Two central temporary staging areas within the Campo Corridor on the Reservation of approximately 20 acres total would be established for construction management facilities, material storage, equipment storage, and worker parking. Vehicle parking would be clearly marked and limited to areas away from sensitive habitat. Upon completion of construction, the O&M facility would be built within one of the central staging area footprints. In addition to the temporary central staging areas, each turbine would require a temporary staging area at the turbine location for the assembly of the turbine components and to erect each turbine. Each temporary staging area for a turbine would be approximately 100 feet by 200 feet, plus clearing for blades.

J. On-Reservation Gen-Tie Line

The Project includes an approximately 8.5-mile 230 kV gen-tie line. Approximately 5 miles of the gen-tie line, including 42 support poles, would be located within the Campo Corridor on the Reservation. The On-Reservation gen-tie line includes the crossing of Interstate (I) 8. The other approximately 3.5 miles of gen-tie line Off-Reservation is included in the Boulder Brush Facilities.

K. Boulder Brush Facilities

The Boulder Brush Facilities include the following components:

1. Off-Reservation gen-tie line
2. High-voltage substation
3. 500 kV switchyard and connection to existing SDG&E Sunrise Powerlink
4. Access roads
5. Defensible space (fuel modification zones)

The Boulder Brush Facilities would be located on private lands. With the exception of the incoming and outgoing connection lines that connects the 500-kV switchyard to the Sunrise Powerlink, which would be constructed, owned, and operated by SDG&E, the Boulder Brush Facilities are subject to MUP requirements from the County for construction and operation. Because the incoming and outgoing connection lines would be constructed by SDG&E, they are subject to the requirements of the California Public Utilities Commission's General Order 131-D. The Boulder Brush Facilities are part of the Project; therefore, environmental impacts relating to the Boulder Brush Facilities are evaluated in this EIS for informational purposes.

Within the Boulder Brush Corridor, the Boulder Brush Facilities would impact approximately 200 acres on privately-owned parcels Off-Reservation in southeastern San Diego County, north of the community of Boulevard and I-8. Regional access would be provided by I-8. Local access would be provided by Ribbonwood Road. The private properties through which Boulder Brush Facilities would extend currently consist of largely undeveloped ranch land, a portion of which is grazed by cattle and a portion of which is used by off-road recreational vehicles. The affected parcels are surrounded by the following uses: existing nearby wind turbine facilities (Kumeyaay Wind, which is located on the Reservation, and Tule Wind, located within 1 mile to the west, north and the east of the Boulder Brush Facilities), transmission infrastructure (Sunrise Powerlink), and a small number of rural residential homes. The Sunrise Powerlink crosses the northeast portion of these parcels. The Kumeyaay Wind facilities are located to the west and Tule Wind facilities are located to the west, north, and east of the Boulder Brush Facilities.

1. Off-Reservation Gen-Tie Line

Approximately 3.5 miles of the overhead 230 kV gen-tie line (see Figure 2-5, Transmission Lines, in Appendix E) would be constructed within the Boulder Brush Corridor as part of the Boulder Brush Facilities on private lands within the County and would, therefore, be subject to at least one MUP. This segment of the gen-tie line would require approximately 32 steel pole structures that would accommodate the transmission wires and a fiber-optic ground wire attachment for lightning protection and internal communications. The height of the steel poles would vary by location, up to a maximum height of 150 feet.

2. High-Voltage Substation

The high-voltage substation would be constructed within the Boulder Brush Corridor and located adjacent to the proposed 500 kV switchyard that would connect to the Sunrise Powerlink. This substation would step

up power generated by the Project and delivered to the high-voltage substation through the gen-tie line from 230 kV to 500 kV.

The high-voltage substation equipment would include transformers that would be connected through circuit breakers to a jumper link located within the fenced boundary of the high-voltage substation to deliver power to the point of interconnection. The high-voltage substation would include a control house and a parking area for utility vehicles. The high-voltage substation would generally be an unstaffed facility, except in cases of maintenance and repair activities. The cleared area surrounding the high-voltage substation and the area inside the high-voltage substation fence would be covered with gravel. Eight-foot-tall security fencing would be installed around the perimeter of the high-voltage substation site. The high-voltage substation would be approximately 220 feet by 320 feet (1.6 acres). The disturbed area for the high voltage substation including the cleared areas around the high voltage substation would be approximately 2.5 acres.

Most substation equipment would feature a low-reflectivity finish to minimize glare. Dull-colored insulators would be used to minimize visibility. Outdoor nighttime lighting at the high-voltage substation would be kept to the minimum required for security and safety, and all lighting would be hooded, directed downward, and turned off when not required. The high-voltage substation would allow for the receiving and stepping up of electric energy from 230 kV to 500 kV for the Torrey Wind Project, a separate wind energy project proposed on private lands under County jurisdiction and located northeast of the Reservation. If both the Project and the Torrey Wind Project are approved, using the high-voltage substation for both projects would reduce the overall environmental impacts of the two wind projects. If only the Project is approved, the high-voltage substation would be constructed to serve only the Project. Similarly, if only the Torrey Wind Project is approved, the high-voltage substation would be built to serve only the Torrey Wind Project.

3. 500 kV Switchyard and Connection to Existing SDG&E Sunrise Powerlink

A new 500 kV switchyard would be constructed within the Boulder Brush Corridor adjacent to the proposed high-voltage substation and transferred to SDG&E for its ownership, operation, and maintenance upon completion and acceptance. The switchyard would interconnect the Project to the existing Sunrise Powerlink by a ring bus design with three 500 kV breakers, a control house, and a fenced-in graveled area. The connection to the Sunrise Powerlink would be made through incoming and outgoing connection lines to be constructed by SDG&E that would effectively route the power through the ring bus, and the Project's point of interconnection would be at an open position on that same bus.

The switchyard would require a fenced-in footprint of approximately 400 feet by 750 feet (6.9 acres). A 30-foot-wide fuel modification zone would be provided around the perimeter of the switchyard and site grading and clearing. The total disturbance area for the switchyard and incoming/outgoing connection lines would be approximately 16 acres.

The switchyard would be built to serve the Torrey Wind Project regardless of whether it is shared by other projects, including the Campo Wind Project.

4. Access Roads

Where feasible, the existing network of permanent roads within the Boulder Brush Boundary would be used to access the Boulder Brush Facilities during construction. New access roads within the Boulder Brush Boundary would also be constructed to provide access and circulation to the Boulder Brush Facilities. The access roads to the Off-Reservation gen-tie line and pole structures would be 16 feet wide with a decomposed granite and gravel surface.

Primary access to the Boulder Brush Facilities would continue to be provided from I-8, with local access provided via Ribbonwood Road.

An approximately 1-mile segment of Ribbonwood Road (outside of the Boulder Brush Boundary) from Opalocka Road/Ribbonwood Road to the Boulder Brush Facilities site entrance off Ribbonwood Road would be improved. The existing 1-mile unpaved road segment ranges from 12 feet wide to 40 feet wide, and would be widened to 30 feet and paved, to allow sufficient access. This 30-foot paved road would continue on site for approximately 4 miles up to the high-voltage substation and switchyard site. The off-site and on-site segments of this roadway would be privately maintained.

5. Defensible Space (Fuel Modification Zones)

Fire protection measures are defined in County Code Regulatory Ordinance, Title 9, Division 6, Chapter 1, County Fire Code. The regulations identify access road requirements and fuel modification zone requirements.

Permanent access roads would be constructed to provide access to the high-voltage substation and switchyard. County Code, Section 96.1.4907.2.1, specifies fuel modification of combustible vegetation from sides of roadways**.** The Fire Authority Having Jurisdiction may require a property owner to modify combustible vegetation in the area within 20 feet from each side of the driveway or a public or private road adjacent to the property to establish a fuel modification zone. The nearest fire station, California Department of Forestry and Fire Protection (CAL FIRE) Boulevard, is located just south of I-8, off Ribbonwood Road.

2.2.2 Construction

Construction of the Project is anticipated to require approximately 14 months. The development footprint under any alternative would be confined to the minimal area necessary for construction and safe and reliable operation. Development of new access routes would be limited to the maximum extent practicable. All construction areas, staging areas, and access roads would be clearly delineated in the final engineering plans.

Work Force: Construction of the Project would involve up to 501 construction workers on a daily basis. Construction would begin with site preparation and construction fencing/markers to delineate the extent of construction disturbance areas; installation of civil improvements, including temporary staging areas for turbine deliveries; construction of access roads; installation of the underground runs for electrical cabling; construction of turbine, Met tower, transmission pole, and transformer foundations; and preparation of crane

pads for erection of the turbines. Installation of electrical hardware (including cabling), construction of the main substation, placement of the pad-mount transformers (if required), construction of the O&M facility, and erection of the turbines would follow. The final phase would include the completion of all wind turbine generators, substation, and other facilities (including the gen-tie line and switchyard); followed by commissioning and testing of each turbine, the substation, the utility interconnection, and the electrical system; restoration of the temporary construction areas, staging areas, and turbine crane pads; and site cleanup, erosion control, and stabilization. Approximately 3 months of commissioning or testing would then be performed.

Construction Communication and Contacts: Construction communications and contacts would be standard for this type of project (provided in Appendix D to this EIS).

Materials and Equipment: Construction equipment would be standard for this type of project. Table 2-1, Construction Equipment and Vehicles (provided in Appendix D to this EIS), lists construction equipment commonly associated with the construction and installation of wind facilities.

Construction Timing: Construction would generally occur between the hours of 7:00 a.m. to 7:00 p.m. Some delivery activity at nighttime would be necessary to accommodate requirements by the California Department of Transportation (Caltrans) and/or the California Highway Patrol.

Construction Activities, SWPPP, and Erosion Control: A stormwater pollution prevention plan (SWPPP) would be prepared for the Project as part of the U.S. Environmental Protection Agency's National Pollutant Discharge Elimination System Multi-Sector General Permit for Storm Water Discharges, and would document the selection, design, and installation of stormwater control measures, which could include the following:

- Silt fences, straw bales, fiber rolls, sedimentation ponds, and rainfall diversion ditches
- Restoration of all temporarily disturbed areas, to include recontouring the area; stockpiling and then reapplying topsoil; and reseeding the area with a mixture of native grasses, forbs, and shrubs
- Installation of silt fences and/or straw bales at road drainage outlets to prevent soil erosion and drainage into watercourses
- Strategic placement of stockpiled materials (e.g., debris, excess soil) such that it cannot reach watercourses

Construction Water: Water demand during construction would total approximately 173 acre-feet (AF). Water sources during construction would include On- and Off-Reservation facilities, such as the production wells on the southern end of the Reservation and commercially obtained non-potable water from permitted Off-Reservation purveyors such as JCSD and PDMWD.

Construction of specific components is described below.

A. Wind Turbines

Wind turbine construction would include grading the turbine and crane pads, foundation work, tower erection, nacelle, blade, and rotor and installation, nacelle installation, blade erection, pad-mount installation (if necessary), miscellaneous mechanical and electrical installation, finish grading, rock ring installation around the outside of the tower, and finally, restoration of the temporarily disturbed ground and vegetation.

An approximately 1.9 acres temporary construction area for each wind turbine site would require clearing and grading for the crane pad, equipment laydown, and other construction-related needs. Within this temporary construction area, a 60-foot by 100-foot crane pad is required for supporting the large tower erection crane. The crane pad would consist of a compacted native soil or compacted aggregate base gravel area. Upon completion of wind turbine construction, gravel with a minimum approximately 16-foot width would be placed around each approximately 20-foot-diameter reinforced concrete turbine pedestal to provide truck access.

Wind turbine foundation design would be based on geotechnical and structural design parameters, wind turbine manufacturer requirements, local design codes, and standards of the wind turbine industry, as determined by the Project's certified professional engineer. It is expected that foundations would be approximately 70 to 80 feet in diameter and 7 to 10 feet below grade (exact dimensions would depend on specific site needs). Each concrete foundation would incorporate approximately 600 to 650 cubic yards of concrete. Each turbine foundation may also include a 5-foot by 9-foot concrete pad if the turbine uses a pad-mount transformer. A licensed geotechnical engineering firm would oversee foundation design and construction to ensure that the recommendations provided in the geotechnical investigation are followed.

Turbine towers, nacelles, and blades would be erected in three phases. Each tower would be fabricated, delivered, and erected in multiple sections. The first phase would consist of installation of the switch gear and the tower base (the bottom level of the tower sections) over the foundation anchor bolts. The tower base would be leveled, and high-strength grout would be applied in the space between the tower and the foundation. The second phase would consist of installation of multiple tower sections to complete the tower. The third phase would consist of installation of the nacelle, connecting it to the tower, and the full rotor assembly (including the hub and blades). Cranes would be used at each turbine location to erect the turbines.

B. Access Roads

Campo Wind Facilities access roads would be constructed of native soils with decomposed granite and gravel, or similar suitable materials, to provide access in nearly all weather conditions. All roads would be constructed or upgraded in accordance with industry standards. Bulldozers and graders would be used to build and widen roads, and a water truck would be used for road compaction and dust control. Compaction requirements to build embankments for roads and compaction equipment would be determined by the geotechnical engineer of record for the Project.

C. Electrical Collection and Communication System

Approximately 28 miles of underground ECCS cable would be installed underground in temporary trenches in order to connect each wind turbine to the collector substation. There would be three cable conductors, one grounding wire and one fiber-optic cable installed per trench approximately 4 feet below grade. A red warning tape printed with "Buried Cable" or similar would also be placed in the trench above the cables, approximately 1 foot below grade.

The underground ECCS would be routed to minimize the overall cable length required for the Campo Wind Facilities and to lessen the temporary impacts associated with the trenching. For example, cables would be routed in parallel and/or adjacent to access roads to the extent feasible. However, in some cases, trenches would run overland from the end of one turbine string to an adjacent string. Each trench would be approximately 2 to 4 feet wide and 4 feet deep. An additional, approximately 14 feet of temporary disturbance alongside the trench would be required to account for trenching equipment and temporary placement of excavation. Depending on terrain, an approximately 40-foot-wide area may be required to install portions of the underground ECCS cables using a combination of trenching, open excavation, and directional boring. In addition, certain areas may not be feasible for trenching due to solid rock, large boulders, or subsurface resources. In these instances, a temporary worksite 15 feet to 20 feet wide may be required to enable construction of overhead ECCS circuits. These overhead circuits would be supported on steel/concrete monopoles up to 60 feet in height that would be spaced approximately 450 feet apart. Junction boxes for access to underground cables for inspection, maintenance, and repair would be installed at approximately 0.2-mile intervals. Once installed, the temporarily disturbed areas would be revegetated with a native seed mix. Where underground ECCS cables must cross public roadways, installation can be accomplished using directional boring equipment to minimize traffic and roadbed impacts.

D. Collector Substation

Once access to the collector substation site has been provided, site grading and preparation would follow. Approximately 3 acres would be cleared and graded to enable adequate mobility for construction equipment and activities. Site grading would require the use of bulldozers and scrapers to cut and fill native soil to the proposed pad elevation. Additional equipment, including backhoes and drill rigs, would be used to excavate foundations, and concrete mixed at the temporary concrete batch plant would be used to build the foundation/substation pad. Structural footings and underground utilities, along with electrical conduit and grounding grid, would be installed, followed by aboveground structures and equipment. Construction would continue with installation of the various concrete footers and foundations needed for the circuit breakers, control houses, and the main transformer that would be installed in the collector substation area. A grounding mat, installed and then covered in gravel, would be the final ground surface of the collector substation. Steel structures, various electrical equipment, and fencing around the collector substation would then be installed. A chain-link fence would be constructed around the new collector substation for security and to restrict wildlife and unauthorized persons from entering.

E. O&M Facility

The O&M facility would be constructed during the first stages of construction after roadways and access to the Project Site are developed. The O&M facility would be located within one of the two central staging areas on the Reservation, which would be fenced for safety. When construction is complete, the fencing would be removed, if provided, and the staging areas and the land outside the O&M facility footprint would be returned to their pre-construction state.

F. Meteorological Towers

Construction work areas would be cleared for each permanent meteorological tower location. These work areas would vary in size due to topography, requiring an approximately 0.3- to 0.5-acre area around each permanent tower to be cleared and leveled. The construction work area would be necessary for foundation excavation and construction, assembly of Met tower sections, and staging of the construction crane, which would hoist the lattice tower sections into place.

To support the construction crane for Met tower erection, a compacted-soil crane pad with a maximum slope of 1% would be required. The underlying soils would be compacted to provide a soil-bearing capacity designed to provide a stable foundation for the crane.

Permanent Met tower foundations would be buried underground. Although exact dimensions would depend on the geotechnical survey, site-specific needs, and the final hub height of the wind turbines, the foundations for un-guyed, self-supporting, lattice structures would typically be approximately 26 feet by 26 feet. The towers would be enclosed within an approximately 50 feet by 50 feet perimeter by an 8-foot-tall chain-link fence with locked gates. All other cleared areas associated with construction would be revegetated.

Temporary Met towers would be installed by crane at specified turbine locations that would have already been graded and prepared for turbine construction. Therefore, no incremental site preparation work would be required. These towers would require much smaller concrete foundations than the permanent meteorological towers since they would be supported by guy wires. Upon collecting sufficient, site-specific wind data, these towers would be removed.

G. Water Collection and Septic Systems

Construction of the water collection system for O&M Facility would consist of incidental trenching and grading along areas to be disturbed for access road or ECCS purposes. Sewage disposal is anticipated via an approved septic system on site or nearby on the Reservation.

H. Temporary Concrete Batch Plant for Use during Construction

The temporary concrete batch plant within the Campo Corridor on the Reservation and would occupy an area of approximately 400 feet by 400 feet, or 3.7 acres. This area would be cleared and minimally graded, including installation of temporary best management practices (BMPs), once access is established. Areas would be assigned for concrete mixing, aggregate and sand stockpiling, ingress and egress, truck load-out

area, and turnaround(s). Sand, aggregate, concrete, and water would be delivered to the temporary concrete batch plant and stored in stockpiles until use. The temporary concrete batch plant would be removed upon completion of construction and revegetated in accordance with the applicable requirements.

I. Temporary Staging and Parking Areas for Use During Construction

Two, On-Reservation, temporary staging areas, of approximately 20 acres in total would be cleared and graded, including installation of temporary BMPs, to provide for construction-management facilities, materials and equipment storage, and worker parking. Vehicle parking would be clearly marked and limited to areas away from sensitive habitat. Upon completion of construction, the O&M facility would be located within one of the central staging area footprints. In addition to the temporary central staging areas, each turbine would require a temporary staging area at the turbine location for the assembly of the turbine components and to erect each turbine. Each temporary staging area for a turbine would be approximately 100 feet by 200 feet, plus clearing for blades.

J. On-Reservation Gen-Tie Line

Work on the approximately 5 miles of gen-tie line on the Reservation would begin with construction of new or improved access roads to the gen-tie line steel pole structures. The gen-tie line access roads would be graded level and would generally be 16 feet wide for straight sections and up to 20 feet wide at curves to allow for the safe access of construction equipment and vehicles. Access roads to the gen-tie line structures would be decomposed granite and gravel roads.

Engineered steel poles would be drilled on pier foundations for turning or dead-end structures and directly embedded structures for tangential poles. Each turning or dead-end steel pole would be set on a concrete foundation pier, with a hole dimension of approximately 24 inches in diameter and up to 25 feet deep. Each tangential structure would be directly augured into up to 24-inch poles, backfilled with native soils, and then compacted. Pole holes would be excavated using a truck-mounted drill rig; poles would then be delivered on a flatbed trailer and hoisted into place by a crane. Poles associated with the I-8 crossing would involve foundations with pole hole of 36 inches in diameter by up to 36 feet deep.

Installation of the new 230 kV conductor would require pull sites along the gen-tie line route. Generally, pull sites would be approximately 100 feet by 150 feet and would be required where 230 kV angle structures are located. The sites would be needed to load the tractors and trailers with reels of conductors and the trucks with tensioning equipment. After the conductor has been pulled into place, the sag between the structures would be adjusted to a pre-calculated level and the line would be installed. The conductor would then be attached to the end of each insulator, the sheaves would be removed, and the vibration dampers and other accessories would be installed. Approximately 5 miles of the 230 kV gen-tie line, including 42 support poles, would be located on the Reservation.

Boulder Brush Facilities

Up to 48 workers would be involved in construction of the Boulder Brush Facilities on a daily basis. Construction would be approximately 9 months completed by the end of 2020.

1. Off-Reservation Gen-Tie Line

Work on the approximately 3.5 miles of gen-tie line within the Boulder Brush Corridor on private land would begin with construction of a new access road to the new switchyard and new access roads to the gen-tie line steel pole structures. The gen-tie line access roads would be graded and would generally be 16 feet wide for straight sections and up to 20 feet wide at curves to allow for the safe access of construction equipment and vehicles. Access roads to the gen-tie line structures would be decomposed granite and gravel roads, but the main access road to the switchyard would ultimately be finished as a 30-foot-wide paved road.

The Off-Reservation gen-tie line would be constructed in the same manner as that described above for the On-Reservation gen-tie line. Approximately 3.5 miles of the 230 kV gen-tie line and 32 poles would be constructed within the Boulder Brush Corridor as part of the Boulder Brush Facilities on private lands.

2. High-Voltage Substation

Once access to the high-voltage substation site has been provided, site grading and preparation would follow. The site would be cleared, graded, and prepared to enable adequate access for construction equipment and activities. Site grading would require the use of bulldozers and scrapers to cut and fill native soil to the proposed pad elevation. Additional equipment, including backhoes and drill rigs, would be used to excavate foundations, and concrete mixed at the temporary concrete batch plant would be used to build the foundation/substation pad. Construction would continue with installation of the various concrete footers and foundations needed for the circuit breakers, control houses, and the main transformer that would be installed in the substation area. A grounding mat, installed and then covered in gravel, would be the final ground surface of the substation. Steel structures, various electrical equipment, and fencing around the substation would then be installed.

3. 500 kV Switchyard and Connection to Existing SDG&E Sunrise Powerlink

Construction of the switchyard would begin with clearing vegetation and organic material from the switchyard site. The switchyard site would then be excavated to frame and pour foundations. Structural footings and underground utilities, along with electrical conduit and grounding grid, would be installed, followed by aboveground structures and equipment. An 8-foot-tall security fence would be constructed around the switchyard for security and to restrict wildlife and unauthorized persons from entering the facility.

Construction of the incoming and outgoing connection lines would be performed by SDG&E and would involve installing approximately 12 steel transmission structures, stringing high-voltage transmission wires, and tension pulling the wires.

4. Access Roads

The paved road on private lands from the existing paved Ribbonwood Road to the switchyard would be constructed to approximately 30 feet in width. The access roads to gen-tie line poles within the boulder Brush Corridor on private lands would be constructed to between 16 feet and 20 feet wide and surfaced. Improvements to existing roads would consist of increased graded width in some areas, particularly at corners or bends, and improved crossings, involving addition of blocks for stability or increased length of culverts as necessary. The portions of increased road width necessary for construction activities but not required for operations would be removed upon completion of construction and revegetated in accordance with the applicable requirements.

2.2.3 Operations and Maintenance

Except for the switchyard and the incoming and outgoing connection lines (which would be owned, operated, and maintained by SDG&E), the Project would be operated by the developer or a qualified third-party designee. The developer would operate these facilities in accordance with an operating plan, which would be tailored to meet the requirements of all Project agreements, permitting requirements, and prudent industry practices. An annual maintenance plan would be developed in accordance with turbine manufacturer recommendations, developer-established maintenance procedures, industry practices, permit requirements, and equipment conditions. Site personnel would manage the major maintenance under the direction of the site O&M manager. Non-routine repair situations would, by definition, require unplanned maintenance activities. These activities would be evaluated by the site O&M manager and incorporated into the plant maintenance management system.

Capital improvements would be managed similarly to the major maintenance plan. The site O&M manager, working with site personnel, would be responsible for looking for opportunities to provide continuous improvement in terms of enhancing plant performance and reducing costs.

All turbines, ECCS cables, substations, and transmission lines would be operated in a safe manner according to standard industry procedures. Routine maintenance of the turbines would be necessary to maximize performance and detect potential inefficiencies. The developer and the turbine supplier would control, monitor, operate, and maintain the Project by means of a SCADA system and regularly scheduled on-site inspections. Any problems would be promptly reported to on-site O&M personnel, who would perform routine maintenance and most major repairs. Most servicing would be performed up-tower (i.e., O&M personnel would access the towers using pick-up trucks and then would climb the towers and perform maintenance within the tower or nacelle), without using a crane to remove the turbine from the tower. In certain instances, major maintenance (for example blade repair) would require use of a crane.

Additionally, all roads, turbine bases, and trenched areas would be regularly inspected and maintained to minimize erosion. The developer anticipates that approximately 10–12 O&M staff members would be employed on site at any one time throughout the life of Project. Hours of operation would be from 7:00 a.m. to 4:00 p.m., with at least one staff member on call for emergencies at all times. Major holidays would reduce the staff on site to only three full-time personnel.

All scheduled maintenance activities would occur within areas previously disturbed by construction, so no new ground disturbance would occur during O&M of the Project. Access roads would be maintained during O&M to prevent off-road detours due to ruts, mud holes, or other deterrents. All fuels and hazardous materials would be properly stored during transportation and while at the job site. Workers would be instructed to keep all job sites in a sanitary and safe condition. For vegetation control purposes, mowing or weed-eating would occur along Project roads, and around the substation, O&M facility, and turbines.

Gen-tie line and substation inspections would occur weekly and would consist of visual inspection of batteries, charger, backup generator breaker, etc. A line patrol would be conducted monthly with binoculars for the first year. After the first year of the line and substation install, all fasteners and equipment would be re-torqued. After the first year, re-torque is conducted every 5 years.

Similar to the substation, monitoring and control for the switchyard would be performed remotely. SDG&E's routine maintenance of the switchyard would involve personnel in a pickup truck visiting weekly. Maintenance vehicles would be used throughout the year for maintenance of the switchyard by SDG&E personnel, consistent with maintenance of other SDG&E facilities in the vicinity. County-approved lighting would be installed inside the high-voltage substation and 500 kV switchyard fenced areas for emergency repair work. Since nighttime maintenance activities are not expected to occur more than once per year, safety lighting inside the high-voltage substation and switchyard fence would normally be turned off. Some of the perimeter lighting in both facilities would remain on throughout the night for safety purposes.

Fire Management

Each Campo turbine would have a 50-foot-radius fuel modification zone that would include the 10-foot radius for the turbine tower, from which a 16-foot zone of suitable earthen material would encircle the base of the turbine tower. Beyond that, a vegetation management area would extend for an additional 24 feet (Figure 2-6, Staging and Laydown Areas). The Collector substation and O&M facility would have a 100-foot-wide fuel modification zone around the facilities, including gravel parking areas and a vegetation management area. The vegetation management area would consist of annually mowed vegetation to limit vegetation height and fire fuel potential. A 6-foot-wide vegetation management area would be maintained along both sides of new roads.

For purposes of fire management, a fuel modification zone of 100 feet (50 feet each side, including a 16-foot-wide road on one side) would extend along the overhead gen-tie line (230 kV). The transmission line route and other Project components would be inspected for trees that may pose safety threats or potential

damage hazards to Project components. Hazardous trees (trees that have been identified as dead, dying, or with high potential to fall and cause damage) would be trimmed or cut and removed as needed.

2.2.4 Decommissioning and Restoration

The Project is anticipated to operate for the term of the Campo Lease and any renewal extension. If the Campo Wind Facilities were to be decommissioned, a decommissioning plan would be prepared and implemented consistent with the requirements of the Campo Lease. The decommissioning plan would be implemented after the Campo Lease term. Decommissioning refers to the dismantling of Campo Wind Facilities and restoration of the Campo Corridor upon expiration of the Campo Lease and the operating life of the Project.

The aboveground dismantling of the turbines and permanent Met towers would take approximately 26 weeks and would require cranes, flatbed trucks, rough-terrain forklifts, 12 workers, 4 vendor trucks, and approximately 390 haul trips. Pad removal would take approximately 12 weeks with 24 workers, 4 vendor trucks, and 1,125 haul trips. Demolition and removal of the O&M facility would take approximately 8 weeks and would involve 12 workers and 4 vendor trucks.

The following sequence for removal of components would be implemented at decommissioning of Campo Wind Facilities:

1. Turbines, Met towers, transmission line, and Collector substation would be dismantled and removed
2. Pad-mounted transformers would be removed
3. All turbine, Met tower and Collector substation foundations would be removed to a depth of 3 feet

The Campo Corridor would be restored to the condition required by the Campo Lease Turbines would be refurbished and resold or recycled as scrap material. All material that cannot be salvaged would be appropriately disposed of at an authorized site in accordance with applicable laws and regulations. Reclamation of the Campo Corridor following decommissioning would be based on the requirements in the Campo Lease and may include regrading, replacement of topsoil, and revegetation.

Decommissioning of the Campo Wind Facilities would minimize new site disturbance and removal of native vegetation to the extent practicable. To the extent practicable, topsoil removed during decommissioning would be stockpiled and used as topsoil during restoration efforts. Soil would be stabilized and revegetated with plant species characteristic of native species within adjacent habitats. Local seed sources would be used where feasible.

Decommissioning of the Boulder Brush Facilities, with the exception of the facilities owned and operated by the SDG&E, would follow all state and County requirements for decommissioning. Decommissioning of these facilities would minimize new site disturbance and removal of native vegetation to the extent practicable. To the extent practicable, topsoil removed during decommissioning would be stockpiled and used as topsoil during restoration efforts. Soil would be stabilized and revegetated with plant species characteristic of native species within adjacent habitats. Local seed sources would be used where feasible.

All decommissioning activities would take place in accordance with all applicable laws, regulations, and terms of the lease.

2.3 ALTERNATIVES EVALUATED IN THIS ENVIRONMENTAL IMPACT STATEMENT

This section describes the distinct features associated with Alternative 1, Alternative 2, and the No Action Alternative. Table 2-2, Impact Acreages of the Project Alternatives (see Appendix D), lists the impact acreages of each alternative.

2.3.1 Alternative 1: Full Build-Out – Approximately 252 MW

Alternative 1 would include 60 turbines rated at approximately 4.2 MW each, for a total production capacity of approximately 252 MW. A total of 76 possible turbine sites have been evaluated, of which only 60 could be constructed under the Campo Lease. Figure 2-1A (see Appendix E) shows the Initial Project Layout for Alternative 1 which includes all 76 possible turbine sites. These sites have been selected to avoid and minimize effects to sensitive resources and receptors.

2.3.2 Alternative 2: Reduced Intensity – Approximately 202 MW

Alternative 2 would include reducing the number of Campo Wind Project's turbines to 48 turbines. These turbines would still be rated at approximately 4.2 MW each, for a total production capacity of approximately 202 MW. All Alternative 2 components and their locations, including the 48 turbines would be similar to those of Alternative 1, (see Figure 2-1B (Appendix E)).

The 12 turbines eliminated relative to Alternative 1 would be those in areas having the potential to affect sensitive resources, specifically biological resources, and certain locations close to sensitive tribal receptors. This would reduce the impact of the Campo Wind Facilities on sensitive tribal resources and receptors and would reduce the amount of energy produced as a whole. Alternative 2 construction and operational characteristics would otherwise be the same as Alternative 1.

2.3.3 No Action Alternative

The No Action Alternative would entail the BIA not approving the Campo Lease and the Campo Wind Facilities would not be constructed. In addition both the On-Reservation and Off-Reservation segments of the gen-tie line and associated access roads would not be constructed under this alternative. This would not preclude future development of the Reservation for other uses, and some or all of the Campo Corridor could be considered for other potential uses by the Tribe. However, no alternative renewable energy development on the Reservation is reasonably foreseeable at this time. No wind development is proposed under the No Action Alternative, and, for the purposes of NEPA analysis in this EIS, no wind energy development would occur if the No Action Alternative were selected. Other components within the Boulder Brush Facilities including the high-voltage substation and switchyard and in and out connection legs may be permitted by the County of San Diego and constructed as part of another project, such as the Torrey Wind Project.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Other alternatives were considered as candidates for detailed analysis in the EIS but were eliminated from further consideration for the reasons described below. Furthermore, alternatives to the Boulder Brush Facilities have been considered by the County and addressed through their environmental review process.

2.4.1 Mixed Renewable Generation (Wind and Solar)

The Mixed Renewable Generation (Wind and Solar) Alternative was anticipated to have similar impacts to the two chosen alternatives evaluated in this EIS. The location for wind turbines was consistent with that for the chosen alternatives. This alternative would have had a mixture of solar panels and wind turbines to increase electrical generation capacity within a similar total development footprint. This alternative was considered with the development of 50 turbines (approximately 4.2 MW capacity each) and approximately 40 MW solar panel arrays. However, the Campo Lease does not allow the use of solar panels as one of the approved forms of renewable electrical generation and further solar is a high-intensity impact of ground disturbance per MW. It is speculative whether the Tribe and Terra-Gen would be willing to enter into a lease to allow the use of solar. Therefore, this alternative was eliminated due to its incompatibility with Terra-Gen and the Tribe's goals and needs as set out in the Campo Lease.

2.4.2 Minimal Build-Out

The Minimal Build-Out Alternative was removed from consideration due to lack of economic feasibility. Alternative components would have included 15 turbines with a capacity of 4.2 MW each, for a total energy generation of 63 MW. The distance and cost of connecting the scaled down project to the planned switchyard would be cost prohibitive and the delivered cost of energy from 15 turbines would be too expensive for a potential buyer to enter into a contract for such a scaled-down project based on current energy market conditions. Impacts to the natural environment would have been reduced in severity while still being similar in significance to those from the two chosen alternatives; however, the goals and objectives of the Project would not have been met.

2.4.3 Off-Reservation Location

An Off-Reservation Location Alternative was eliminated from analysis because the site would not have provided benefits to the Tribe and would have been outside of the Tribal governance and thus outside of the Tribe's ability to enter into a lease.

2.4.4 Reduced Capacity Turbines

As identified during the scoping process, smaller turbines at the low end of the intended turbine range (i.e., 2.5 MW) would present an alternative that reduces the overall capacity of turbines. As also pointed out in the scoping comments, 60 2.5 MW turbines would generate approximately 150 MW. Impacts to the environment would have been similar to those of the larger capacity turbines considered in Alternative 1

as a consequence of similar disturbance footprint. A slight reduction in severity of aesthetics impacts would have been likely, but impacts would have remained of similar significance to those from the two chosen alternatives.

2.4.5 Distributed Generation

Distributed generation refers to a variety of technologies that generate electricity at or near where that electricity would be used, such as solar panels and small wind turbines. Distributed generation may serve a single structure, such as a home or business, or it may be part of a microgrid (a smaller grid that is also tied into the larger electricity delivery system), such as at a major industrial facility, a military base, or a large college campus. When connected to the electric utility's lower-voltage distribution lines, distributed generation can help support delivery of power to additional customers and reduce electricity loss along transmission and distribution lines (EPA 2018).

Under this alternative, distributed generation, including residential and commercial roof-top solar panels, distributed wind turbines at residences or commercial buildings, biofuels, hydrogen fuel cells, and other renewable distributed energy sources, would be installed throughout San Diego County. Distributed generation facilities would be numerous and would have to be located primarily at Off-Reservation locations to generate the same approximate amount of energy that would be produced by the Project. This was eliminated from analysis because it would not provide benefits to the Tribe and would be outside of the Tribal governance.

2.5 COMPARISON OF ALTERNATIVES

Table 2-3, Comparison of Effects for Project Alternatives (see Appendix D), summarizes the identified effects of each of the Project alternatives. As presented in Table 2-3, each build alternative would result in similar adverse effects on resources. The severity of identified adverse effects varies among the alternatives and declines with the reduction of electricity generation, number of turbines, and/or development footprint.

CHAPTER 3
AFFECTED ENVIRONMENT AND AREAS NOT FURTHER DISCUSSED

This chapter describes the natural and human environment potentially affected by implementation of the Project and alternatives in this EIS. The components of the environment, often referred to as "resources," that are described in this chapter are specified in the BIA NEPA Guidebook, Sections 8.4.7 and 6.4.5 (DOI 2012a). The affected environment includes resources that could be directly or indirectly affected by the Project alternatives. Throughout this section, the term "Project Site" is used to refer to the combined Campo Corridor and Boulder Brush Corridor as shown in Figure 1-2 in Appendix E on which proposed Project facilities would be constructed and/or operated. The term "Project Area" is used to describe the broader area potentially affected by the Project alternatives. This area is generally consistent with the

Reservation Boundary and Boulder Brush Boundary shown on Figures 1-1 through 2-1B in Appendix E, unless otherwise specified.

Regional Setting

The Project is primarily located on the Reservation, which is over 16,000 acres in area and includes lands both north and south of Interstate (I) 8 along the Tecate Divide, extending south from the Manzanita Indian Reservation to approximately 0.25 miles north of the U.S./Mexico International Border (Figures 1-1 and 1-2 (see Appendix E)). The Reservation is in the vicinity of the communities of Boulevard, Jacumba, and Live Oak Springs, and is bisected by Church Road.

The topography of this part of the San Diego region is of moderate to steep relief on a semi-arid plateau adjacent to the Laguna Mountains (Campo Band of Diegueño Mission Indians 2010). This part of the region is characterized by sparsely developed, high-desert rolling hills. The Project Area is in a desert transition zone, which supports a variety of habitat types and vegetation communities and is dominated by chamise chaparral with both a monotypic phase and a mixed chaparral phase. Additional vegetation communities found throughout this area and especially along ridges and slopes include red shank chaparral, big sagebrush scrub, and upper Sonoran subshrub scrub. A series of ridges running north to south is located throughout the Project Area separated by shallow valleys consisting of coast live oak woodland, nonnative grassland, and southern willow scrub vegetation. Various large rock-outcrops of light-colored boulders are scattered throughout this area but are primarily located along the ridgelines.

The Project Area also includes scattered housing and some moderate development near the Tribal Administration Center, the Southern Indian Health Center Clinic, the current sand-mining operation (Campo Band of Diegueño Mission Indians 2010), and Off-Reservation areas extending northeast to the existing Sunrise Powerlink transmission line. Three highways cross the region: I-8, Old Highway 80, and State Route (SR) 94. An existing rail line, operated by San Diego and Imperial Valley Railroad, also extends to this area.

3.1 LAND RESOURCES

3.1.1 Regulatory Setting

This section discusses potential impacts to land resources resulting from implementation of the proposed Campo Wind Project with Boulder Brush Facilities (Project). The analysis is based on a review of existing resources; existing technical data; applicable laws, regulations, and guidelines; and technical reports prepared for the proposed Project. Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards that govern land resources on the Campo Indian Reservation (Reservation). Appendix C also discusses the Campo Band of Diegueño Mission Indians (Tribe) Land Use Plan, Land Use Code, and other tribal authorities. Under the terms of the lease, certain Tribal laws apply to the Lessee, including certain provisions of the Tribe's Tax Ordinance and Tribal Employment Rights Ordinance. Appendix C discusses Tribal land use standards relating to the

potential environmental effects addressed in this Draft EIS including the Campo Environmental Protection Agency (CEPA) statutes, the Campo Band of Diegueño Mission Indians Land Use Code (Land Use Code), and the Campo Band of Diegueño Mission Indians Land Use Plan (Land Use Plan). The Project will be developed in accordance with the Resource Development Plan approved by the BIA as part of the lease approval process.

3.1.2 Affected Environment

3.1.2.1 Topography

The Reservation ranges in elevation from approximately 3,030 to 4,320 feet above mean sea level. The topography of the area varies from gently rolling hillsides to steep, rocky peaks. The area is in a region of moderate to steep relief on a semi-arid plateau adjacent to and south of the Laguna Mountains canyons.

3.1.2.2 Soil Types and Characteristics

Soils on the Reservation are generally undeveloped, well-drained loamy coarse sands that are moderately sloping and are found on alluvial fans, uplands, and, to a lesser extent, in mountainous areas. According to the Soil Survey of the San Diego Area (USDA 2019), the Project Area principally consists of three soil associations: the La Posta–Kitchen Creek Association, the Tollhouse–La Posta–Rockland Association, and the Mottsville–Calpine Association (see Figure 3.1-1, Soils, provided in Appendix E of this EIS). These soils are predominantly fine- to medium-grained silty sands. In addition to silty sand, local occurrences of clayey sands, sandy or silty clays, and gravelly sands also occur (Dames & Moore 1992).

The majority of the Project Area consists of the La Posta rocky loamy coarse sand soil type and narrow strips of Kitchen Creek loamy coarse sand. The La Posta soil type is moderately sloping to moderately steep and is found on upland areas. The soil depth is shallow to moderately deep, ranging from 16 to 30 inches, and is formed over weathered tonalite. The permeability is moderate to high, resulting in moderately well-drained to excessively drained soils. This soil has a moderate erosion hazard (AECOM 2012).

The Kitchen Creek soil is gently rolling and formed in material derived from tonalite. These soils have a moderately high permeability. Water runoff is slow to medium, with an erosion hazard that is slight to moderate (AECOM 2012).

The Mottsville series soil occurs in smaller areas in the north and central portions of the Project Area. The soil type found at the north end occurs on 2% to 9% slopes on alluvial fans and alluvial plains. The permeability is very high with a slight to moderate erosion hazard and a slow to medium runoff. These are very deep and excessively drained soils. The other soil type of the Mottsville series is located in the central portion of the Project Area within valleys and strongly sloping alluvial fans. These are excessively drained and very deep soils that have high permeability. The resulting runoff is medium, and the erosion hazard is moderate (AECOM 2012).

3.1.3 Geologic Setting and Mineral and Paleontological Resources

3.1.3.1 Geologic Setting

Three major stratigraphic units are found in the Project Area: unweathered to slightly weathered crystalline tonalites (similar to granites) of the Peninsular Range batholith (bedrock), highly weathered tonalites nearer to the surface, and recent alluvial materials on or just below the surface (Dames & Moore 1992). Surface exposures of tonalite are restricted to isolated, natural weathered outcrops of residual boulders, and subtle exposures on barren hillsides and in drainage areas, especially in steeper valley flanks. Somewhat less-weathered sections are also exposed in road cuts and along the railroad grade in the Project Area. Tonalite near the surface is highly weathered. Weathered tonalite is encountered at depths of approximately 110 feet. Unweathered to less weathered tonalite is encountered at depths of approximately 70 to 132 feet below ground surface. Tonalite is often confused with granite on the basis of its appearance. Although tonalite is in the granite series of rocks, it is not true granite based on its mineralogical makeup. Alluvium is rarely in excess of 3 feet in depth. Pegmatitic dikes, typically granitic in mineralogical composition, are exposed locally (AECOM 2012).

3.1.3.2 Mineral Resources

A sand quarry is located in the central portion of the Reservation, immediately west of Church Road. No other mineral resources are known to exist on the Reservation.

3.1.3.3 Faults and Seismicity

Earthquake activity, also known as seismicity, is common throughout Southern California. Southern California is dominated by northwest-trending faults, generally of a right-lateral strike-slip nature, although faults of every type and orientation can be found in the region. California has established Alquist–Priolo Special Studies Zones along and parallel to traces of active faults, and prohibits structures on the traces of such faults. An active fault, as defined by the California Geological Survey (2018), is a fault that has exhibited "surface displacement within Holocene time" (approximately the last 11,700 years).

Southern California is dominated by a major active tectonic structure—the San Andreas Fault—that trends along a roughly northwest/southeast alignment approximately 55 miles northeast of the northern portion of the Project Area. Other active faults near the Project Area include the San Jacinto and Elsinore Faults, which parallel the San Andreas Fault system. The major fault closest to the Reservation is the Elsinore Fault, which is actually a zone of faults that includes the Elsinore, Aguana, Agua Tibia, Earthquake Valley, and Hot Springs Faults (AECOM 2012).

No evidence of Holocene fault movement within the Project Area was indicated by the literature reviewed or the studies conducted in the Project Area. The portion of the Peninsular Ranges in the vicinity of the Reservation appears to be seismically quiescent (i.e., inactive, dormant) at present (AECOM 2012).

The largest earthquake in the vicinity of the Project Area over the past several years was a magnitude 7.2 earthquake on the Imperial Fault on April 4, 2010, which was centered approximately 80 miles southwest of the Reservation. Prior to that, the largest event was a magnitude 7.1 that occurred on November 11, 1915, centered approximately 89 miles southeast of the Project Area (USGS 2018). The closest recorded earthquake to the Project Area was a magnitude 4.8 event that occurred on June 15, 1946. Its epicenter was approximately 2.5 miles southeast of the Project Area (USGS 2018). Of the more than 7,200 historical earthquakes within 93 miles of the Project Area, 98 were significant in that they had magnitudes equal to or greater than 5.0 (USGS 2018).

3.1.3.4 Paleontological Resources

Paleontological resources are the fossilized remains, imprints, and/or traces of plant and animal life preserved in rocks and sediments. They can include bones, teeth, soft tissue, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are generally older than 10,000 years, a temporal boundary marking the end of the glacial Pleistocene Epoch and the beginning of the warmer Holocene Epoch, the current epoch. In the San Diego region, paleontological resources occur in the subsurface sedimentary rock layers, although they sometimes may be found in surface outcrops (AECOM 2012).

Based on paleontological resources record reviews and prior pedestrian field surveys conducted in the region, one highly sensitive geological formation or unit is located within the vicinity of the Reservation: the Table Mountain Formation (PaleoServices 2009). However, this formation is off the Reservation (east approximately 22 miles east) and thus is not of concern for construction, operations and maintenance, or decommissioning associated with the Project.

The Project Area is underlain by rocks formed from molten magma at depths of several miles in the Earth's crust. The placement of these rocks was accompanied by the alteration (metamorphosis) of the preexisting rocks. Because plutonic igneous rocks are formed by the crystallization of magmas several miles below the ground surface, these rocks are assigned a "zero" for paleontological resource sensitivity (PaleoServices 2009).

3.2 WATER RESOURCES

This section describes the regulatory and environmental setting of water resources on the Project Site and in the Project Area, and the hydrologic units within which the Project Area is located. As no groundwater use is proposed or encountered within the Boulder Brush Corridor, groundwater conditions on the Reservation only are described.

3.2.1 Regulatory Setting

Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards that govern water resources on the Reservation. Legal authorities include the Clean Water Act (including Sections 303, 304, 401, 402, and 404); the Federal Antidegradation Policy; the Safe

Drinking Water Act; and the National Flood Insurance Program, including Executive Orders 11988 and 11990 and Title 10 of the Code of Federal Regulations, Part 1022.

3.2.2 Affected Environment

3.2.2.1 Surface Water Resources

The Project Site is located within the Tijuana and Anza-Borrego Hydrologic Units, and more specifically within the Campo and Cameron Hydrologic Areas in the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB) and Jacumba Hydrologic Area in the jurisdiction of the Colorado River RWQCB (see Figure 3.2-1, FEMA Floodplain, and Table 3.2-1, Watershed Designations by Agency/Source (provided in Appendix E and Appendix D of this EIS, respectively)) (San Diego RWQCB 2016; Colorado River RWQCB 2017).

The U.S. Geological Survey Watershed Boundary Dataset indicates the Project Site lies within the Tecate Creek, Upper Cottonwood Creek, and Arroyo Seco watersheds of the Cottonwood–Tijuana sub-basin in the Laguna–San Diego Coastal basin, and in the Upper Carrizo Creek watershed of the Carrizo Creek sub-basin within the Salton Sea basin (Figure 3.2-2; USGS 2016). Surface waters from the Project Site ultimately flow west from the Tecate Divide to the Pacific Ocean, with the exception of waters from the northeastern portion of the Reservation, which flow east from the Tecate Divide to the Salton Sea (Figure 3.2-1, Figure 3.2-2 (Hydrologic Areas), and Table 3.2-1; see Appendices E and D). Baseline hydrologic and existing water resources conditions in the Project Area are further addressed in Appendix F, Groundwater Resources Evaluation for the Campo Wind Project, completed in conjunction with this EIS.

A number of gullies, swales, and dry washes transect the Reservation and private parcels crossed by the Boulder Brush Corridor. During heavy rain events, runoff starts as sheet flow and concentrates in several paths as it flows into area streams. The Project Area includes U.S. Geological Survey blue-line drainages, including Campo Creek, Miller Creek, Diabold Creek, and unnamed dry drainages. An emergent wetland area is located within the central-western portion of the Reservation, along Diabold Creek, a tributary of Campo Creek just west of Church Road (Figure 3.2-3, Watersheds; see Appendix E). This is a constructed wetland created by the Tribe with a permit from the U.S. Army Corps of Engineers. The sensitivity and status of the various surface water resources are further discussed in Section 3.5, Biological Resources, of this EIS. Project features would be placed so as to avoid creeks, streams, tributaries, and jurisdictional waters to the extent feasible. The construction of new access roads across drainage features, however, is unavoidable.

The entire Project Area is identified by the Federal Emergency Management Agency as being within Zone D (FEMA 2012), which indicates that flood risk is undetermined because the agency has not conducted a flood hazard analysis. The Project Site is not downstream of a dam and thus would not be subject to inundation in the event of a dam failure; nor is the Project Area subject to seiche or tsunami (due to the great distance to the ocean or large body of water). In addition, the Project Site is not within any County-identified flood hazard areas (e.g., alluvial fan flooding area) (County of San Diego 2007).

3.2.2.2 Groundwater Resources

Due to the intermittent flow of surface water on the Reservation during most of the year and the unavailability of imported water, domestic water usage is almost entirely dependent upon groundwater supplies. Consequently, preservation of groundwater levels and quality is vital when evaluating Reservation land use proposals (Campo Band of Mission Indians 2010).

A portion of the Project Area is located within the Tijuana Hydrologic Unit, a triangular-shaped area drained by Cottonwood Pine Valley and Campo Creeks, which are tributaries to the Tijuana River. Hydrographs for on-site and off-site wells, provided as appendices to Appendix F, show relatively stable to slightly declining groundwater levels. Groundwater levels at wells on the southern portion of the Reservation range from approximately 21 feet below ground surface to 76 feet below ground surface. Groundwater use during construction of the San Diego Gas & Electric Company (SDG&E) East County (ECO) Substation Project was 36.4 acre-feet over 4 months, compared to 123 acre-feet (40 million gallons) expected to be extracted for the Campo Wind Facilities over 14 months, and an additional 50 acre-feet for components on private lands off the Reservation (Boulder Brush Facilities). Water demand is derived by the developer's engineers from the expected disturbance acres (dust suppression) and volumes of expected concrete. Transducer measurements noted a decline in water levels of up to 110 feet when pumps were running, and 30 to 50 feet when pumps were shut off. By the end of the 5-year post-construction period, however, groundwater had recovered to near pre-construction levels.

Pursuant to Section 1424(e) of the Safe Drinking Water Act, the Regional Administrator of the U.S. Environmental Protection Agency (EPA; Region 9) determined on May 28, 1993, that the Campo/Cottonwood Creek aquifer is a sole or principal source of drinking water (i.e., Sole Source Aquifer) for the population in the vicinity of the communities of Boulevard, Campo, and Pine Valley, located in eastern San Diego County. The majority of the Reservation lies within the designated boundaries of the aquifer.

3.2.3 Water Quality and Supply

Water on the Reservation is provided by both individual on-site wells and community wells through three public water systems regulated by the Tribe, with EPA oversight. The Tribe recognizes the need to plan for future water services and to conserve available water.

As part of a proposed landfill project, limited groundwater quality sampling on the Project Site occurred between 1994 and 2004. Constituents measured in water quality samples include chloride, fluoride, pH, sulfate, total dissolved solids (TDS), Title 22 metals, and volatile organic compounds. Groundwater on the site was primarily sodium-bicarbonate type water, with water quality ranging from good to relatively poor. Poor groundwater quality encountered in some wells was the result of elevated concentrations of naturally occurring metals, primarily arsenic, manganese, iron, and TDS. The study found that TDS concentrations were generally elevated in the shallower parts of the groundwater flow system, with deeper parts generally having lower TDS concentrations and therefore generally better groundwater quality.

While the majority of water used for the Project is not expected to be used for potable purposes, water quality samples collected on the Project Site in 2004 generally met drinking water maximum contaminant levels (MCLs) for constituents sampled. Exceedances of primary MCLs for arsenic occurred in 3 of 34 monitoring wells sampled in 2004. Exceedances of secondary MCLs for TDS occurred in four wells sampled, and exceedances of secondary MCLs for manganese occurred in one well sampled. No volatile organic compounds were detected in any of the wells sampled (Appendix F).

The most recently approved Clean Water Act Section 303(d) List of Water Quality Limited Segments, as listed in the 2014–2016 Integrated Report (SWRCB 2018), lists Cottonwood Creek, Morena Reservoir, Barrett Lake, and a portion of Campo Creek as impaired water bodies under Section 303(d) of the Clean Water Act (Figures 3.2-1 and 3.2-2 and Table 3.2-2; see Appendix E and Appendix D). These water bodies are all located downstream of at least a portion of the Project, and although the Project's surface area is rather limited, the Project Site contributes runoff to a tributary of La Posta Creek, which eventually discharges into Cottonwood Creek, Morena Reservoir, and Barrett Lake. Pursuant to listing, the San Diego RWQCB has been tasked with developing total maximum daily loads (TMDLs) for these listed impairments currently lacking EPA-approved TMDLs. Listed 303(d) impairments in waterbodies located downstream from the Project Site include selenium, pH, ammonia, total nitrogen, manganese, phosphorous, perchlorate, indicator bacteria, and water color. Although the Project does not include use of these potential pollutants, ground disturbance and erosion could potentially add sedimentation containing these constituents to surface water flows. These impairments are relevant to the Project because runoff from the site (along with runoff from the whole watershed) eventually discharges into these waters.

3.2.4 Water Use and Rights

As cited in the 1992 Final EIS for the Campo Solid Waste Management Project (BIA 1992), the basic right of Native Americans to all water that "flows around, through, or under their reservations" was established by the U.S. Supreme Court in *Winters v. United States*, 207 U.S. 614 (1908). In 1963, the Supreme Court upheld the *Winters* doctrine in *Arizona v. California*, 373 U.S. 600 (1963). The BIA considers the Tribe to have full reservation rights to all the waters flowing around, through, or under the Reservation.

3.3 AIR QUALITY

3.3.1 Regulatory Setting

This section discusses potential impacts to air quality resulting from implementation of the Project. The analysis is based on a review of existing resources; existing technical data; applicable laws, regulations, and guidelines; and technical reports prepared for the Project. Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards that govern air quality on the Reservation. For further discussion, see also the Air Quality Technical Report provided as Appendix G to this EIS. Regulations consist of applicable sections of the Clean Air Act.

3.3.2 Affected Environment

3.3.2.1 Climate and Topography

The local climate in southeastern San Diego County is characterized as semi-arid with consistently mild, warm temperatures throughout the year. The average summertime high temperature in the region is approximately 77°F, with highs approaching 94°F in August on average. The average wintertime low temperature is approximately 43°F, although record lows have approached 33°F in December. Average precipitation in the local area is approximately 10 inches per year, with the bulk of precipitation falling between December and March (WRCC 2017). Further details regarding the climate and topography are provided in Appendix G.

3.3.2.2 San Diego Air Basin Climatology

The Project Site is located within the San Diego Air Basin (SDAB). The SDAB is one of 15 air basins that geographically divide the State of California. The SDAB is currently classified as both a federal and state nonattainment area for ozone (O_3) and as a state nonattainment area for particulate matter of 10 microns or less in diameter (PM_{10}) and particulate matter of 2.5 microns or less in diameter ($PM_{2.5}$).

The SDAB lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles. It is an area of high air pollution potential. The basin climate of warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity also drives the pollutant levels. The Pacific High Pressure Zone drives the prevailing winds in the SDAB. The winds tend to blow onshore during the daytime and offshore at night. In the fall months, the SDAB is often dominated by Santa Ana winds. These winds are the result of a high pressure system over the Nevada–Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean (SDAPCD 2017). The winds typically blow the SDAB's pollutants out to sea; however, a weak Santa Ana wind can transport air pollution from the SDAB and greatly increase the San Diego O_3 concentrations. A strong Santa Ana wind can also prime seasonally dry vegetation for firestorm conditions.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, which contributes to the formation of smog. Smog is a combination of smoke and other particulates, O_3, hydrocarbons, oxides of nitrogen (NO_x), and other chemically reactive compounds, which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects (CARB 2014).

Light daytime winds, predominantly from the west, further aggravate the inversion by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and NO_x emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and motor vehicle traffic. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the SDAB are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

3.4 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

3.4.1 Regulatory Setting

This section discusses potential impacts of greenhouse gas (GHG) emissions resulting from implementation of the Project. The analysis is based on a review of existing resources; technical data; applicable laws, regulations, and guidelines; and technical reports prepared for the Project. The regulatory setting for GHG emissions is provided in Appendix C, Regulatory Settings, of this EIS, as well as the Air Quality and GHG Emissions Analysis Technical Report provided as Appendix G. Regulations consist of applicable sections of the Clean Air Act; the Energy Independence and Security Act of 2007 (December 2007); the EPA and National Highway Traffic Safety Administration final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728) and for model years 2017–2021 (77 FR 62624–63200); fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513); the EPA final rule establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660 aka Clean Power Plan); and the EPA Final Mandatory Greenhouse Gas Reporting Rule (74 FR 56260–56373).

3.4.2 Affected Environment

3.4.2.1 The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating

the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

It is extremely likely that human activities have been the dominant cause of global warming since the mid-20th century and are the most significant driver of observed climate change (EPA 2017a; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013).

3.4.2.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), CH_4, N_2O, O_3, water vapor, fluorinated gases (HFCs, PFCs, SF_6 and nitrogen trifluoride (NF_3)), chlorofluorocarbons (CFCs), and hydrochlorofluorocarbons (HCFCs). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes.

3.4.2.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2015). The global warming potential (GWP) of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons of CO_2 equivalent (MT CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (which means that emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Project.

3.4.2.4 Loss of Sequestered Carbon

The calculation methodology and default values provided in CalEEMod were used to calculate potential CO_2 emissions associated with the one-time change in carbon sequestration capacity of a vegetation land use type. The calculation of the one-time loss of sequestered carbon is the product of the converted acreage value and the carbon content value for each land use type (vegetation community). The mass of sequestered carbon per unit area (expressed in units of MT of CO_2 per acre) is dependent on the specific land use type. Assuming that the sequestered carbon is released as CO_2 after removal of the vegetation, annual CO_2 is calculated by multiplying total biomass (MT of dry matter per acre) from IPCC data by the carbon fraction in plant material, and then converting MT of carbon to MT of CO_2 based on the molecular weights of carbon and CO_2.

It is conservatively assumed that all sequestered carbon from the removed vegetation would be returned to the atmosphere; that is, the wood from the trees and vegetation communities would not be re-used in a solid form or another form that would retain carbon. GHG emissions generated during construction activities, including clearing, tree removal, and grading, are estimated in the construction emissions analysis.

CalEEMod calculates GHG emissions resulting from land conversion and uses six general IPCC land use classifications for assigning default carbon content values (in units of MT CO_2 per acre).[5] CalEEMod default carbon content values were assumed to estimate the loss of sequestered carbon (release of CO_2) from the removal of the scrub (14.3 MT CO_2 per acre), forest (111 MT CO_2 per acre), wetlands (0 MT CO_2 per acre), and grassland (4.31 MT CO_2 per acre) vegetation categories, which are based on data and formulas provided in the IPCC reports.

3.5 BIOLOGICAL RESOURCES

The following analysis is based on the Campo Wind Project with Boulder Brush Facilities Biological Technical Report (BTR) prepared by Dudek in May 2019 and included as Appendix H to this EIS.

3.5.1 Regulatory Setting

Statutes and regulations applicable to the Project are detailed in Appendix H and Appendix C, Regulatory Settings. These statutes and regulations include the federal Endangered Species Act; Migratory Bird Treaty Act; Bald and Golden Eagle Protection Act; Clean Water Act; Executive Orders 11988 (Floodplain Management), 11990 (Protection of Wetlands), and 13112 (Invasive Species); the U.S. Fish and Wildlife Service (USFWS) Land-Based Wind Energy Guidelines (2012).

3.5.2 Affected Environment

The biological study area is generally consistent with the Project Site encompassing Campo Corridor and Boulder Brush Corridor, though differed for specific surveys completed based on several factors, such as

[5] The six land use classifications are forest land (scrub), forest land (trees), cropland, grassland, wetlands, and other.

habitat and topography in accordance with the survey protocol for that species. Refer to BTR Figures 2 to 12 in Appendix H for additional biological study area information. The acreages of vegetation types mapped within the potential disturbance area are presented in Table 3.5-1 in Appendix D, Environmental Resources Section Tables and Graphs. Refer to Appendix H for a description of each vegetation community and cover type and BTR Figure 13 in Appendix H for the location of these vegetation communities and cover types.

3.5.2.1 Jurisdictional Wetlands and Waters

A formal jurisdictional delineation of jurisdictional waters and wetlands was conducted in 2017 and 2018 pursuant to Clean Water Act, Section 404. Table 3.5-2 (Appendix D) and BTR Figures 13 and 14 (Appendix H) quantify and locate the jurisdictional resources in the Project Site, which include tributaries to Campo Creek, Tule Creek, and Carrizo Creek.

3.5.2.2 Sensitive Species

No federally listed plant species are expected or previously detected within the Project Site. (see BTR Figure 8 (Appendix H)) San Bernardino blue grass is known to occur in the vicinity, but suitable habitat is not present within the Project Site and this species is not expected to occur on site. Seven federally listed wildlife species were evaluated for potential to occur within the Project Area and vicinity: arroyo toad (*Anaxyrus californicus*), California condor (*Gymnogyps californianus*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), Peninsular bighorn sheep (*Ovis canadensis nelsoni*), Quino checkerspot butterfly (*Euphydryas editha quino*), and Laguna Mountains skipper (*Pyrgus ruralis lagunae*). However, only Quino checkerspot butterfly is known to occur, or has moderate or better potential to occur, in the Project Site. Potential effects on the Quino checkerspot butterfly are discussed further below.

Quino Checkerspot Butterfly

Quino checkerspot butterfly is federally listed as endangered. Between 2005 and 2009, Pacific Southwest Biological Services biologists conducted USFWS protocol surveys for Quino checkerspot butterfly in the southeastern portion of the Reservation and found 23 Quino checkerspot butterfly detections as well as host plants. The 2010 protocol survey located 19 Quino checkerspot butterflies within the southeastern portion of the biological study area, and 8 outside the biological study area on the Reservation (see BTR Figure 9 (Appendix H)). The 2018 focused surveys located no Quino checkerspot butterflies within the Project Area, but approximately 699 acres within the Project Area were considered suitable habitat. Protocol surveys for 2019 within the Boulder Brush Corridor were underway at the time of preparing this document. No critical habitat for Quino is located within the area of disturbance. As the USFWS cannot designate critical habitat on reservations, no critical habitat is located on the Reservation (ESA Section 4(b)(2); EO 13175). Critical habitat designated for Quino checkerspot butterfly borders the Reservation to the west and south.

Bald and Golden Eagles

No bald eagles have been observed during the ongoing eagle point count surveys conducted from October 2017 to present (or during any other surveys). The Project Site lacks lakes, ponds, and perennial rivers that support fish, the bald eagle's typical prey; the birds typically nest and roost around water sources. No active Golden Eagle nests are known to occur within 4,000 feet of the biological study area. The closest suitable nesting habitat is located approximately 5.5 miles east of the biological study area in the Jacumba Mountains where there may be rocky outcrops suitable for nesting, and where this species has been documented (USFWS 2018).

3.5.2.3 Species Protected under the Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits the intentional take of migratory birds. A total of 171 avian species were detected within the biological study area, which also provides suitable nesting and foraging habitat for migratory birds.

3.5.2.4 Wildlife Corridors

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. This movement of wildlife is important for many reasons, including breeding and gene diversity, access to food and water, and migration. The Project Site is part of a linkage that connects habitats between the Cleveland National Forest to the north and habitats in Baja California to the south, and along the U.S./Mexico international border. The La Posta Linkage planning area borders the western boundary of the Project Area; however, the linkage excludes the Project Area in the analysis because of access and land use constraints. The Project Area and immediate vicinity are located within the Pacific Flyway general area that extends north–south between North and South America. Based on the avian data collected for the Project and the site's location, habitat, and topography, large concentrations of migrating birds do not regularly pass through the Project Area or immediate vicinity (Appendix H).

3.6 CULTURAL RESOURCES

This section discusses past cultural resource investigations and known cultural resource sites that have been documented in the vicinity of the Project, and cultural or religious properties and prehistoric or historic cultural sites that may qualify as historic properties. Cultural resources on tribal lands are protected and regulated under both federal and tribal law. Information in this section is summarized from the Cultural Resources Technical Report provided as Appendix I to this EIS.

Archaeological resources include both prehistoric and historic evidence of human activity and presence. Prehistoric resources within the Project Area may include lithic (stone) scatters, ceramic scatters, quarries, habitation sites, temporary camps, rock shelters, cairns, rock rings, agave roasting pits, ceremonial sites, and trails.

Historical resources may consist of structures (e.g., building foundations), historic objects (e.g., bottles and cans), and sites (e.g., refuse deposits or scatters). Buildings and structural sites can vary from historic buildings to canals, historic roads and trails, bridges, ditches, dams, and cemeteries. These resources are generally called "built" environment resources. Historic properties are districts, sites, buildings, structures, or objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that are currently listed in the National Register of Historic Places (NRHP) or are potentially eligible for listing.

3.6.1 Regulatory Setting

Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards that govern cultural resources on the Reservation. Applicable statutes and regulations are also discussed in Appendix I. Regulations include Section 106 of the National Historic Preservation Act; implementing regulations at Title 36 of the Code of Federal Regulations, Section 800; the Archaeological Resources Protection Act; and the Native American Graves Protection and Repatriation Act.

3.6.2 Affected Environment

Evidence for human occupation in Southern California dates to more than 15,000 years before present (BP). The prehistoric sequence in the general Campo region is particularly complicated because of travel and trade between aboriginal groups from the Pacific coast to the Colorado Desert and Imperial Valley. This research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (pre-5500 BC), Archaic (8000 BC–AD 500), Late Prehistoric (AD 500–1769), and Ethnohistoric (post-AD 1769), as described in Appendix I.

Europeans first visited the region in AD 1542, when Juan Rodríguez Cabrillo landed in San Diego Bay and made initial contacts with the Kumeyaay. Spanish colonial settlement was initiated in 1769, when multiple expeditions arrived in San Diego by land and sea. The Spanish were constrained to the coastal lands and, following the destruction of the Mission San Diego de Alcala in 1775, limited their eastward expansion to the El Cajon Valley. The Campo–Jacumba region was under Kumeyaay control throughout the Spanish, Mexican, and early American periods until the arrival of American homesteaders such as the McCain family in 1868 (Wade et al. 2009). The Reservation rests partially on the lands negotiated in the Treaty of Santa Ysabel in 1852. The Treaty, along with the Treaty of Temecula, promised the indigenous nations of the region a Reservation of approximately 20% of the current land base of San Diego County in return for the balance of their traditional lands on the coast and in the desert. The Treaty was not ratified due to interference from the California legislature and starting in 1875, only scattered Reservations were created by Executive Order in various areas of the County. The Reservation was created in 1893 near an existing Kumeyaay village in the Cameron Corners area. It was expanded in the early twentieth century to accommodate several other communities of Kumeyaay who still did not have a land base.

Area of Potential Effect

The area of potential effect (APE) for the Project consists of the approximately 2,700-acre Project Site, consisting of 2,200 acres On-Reservation for the Campo Wind Facilities and 500 acres on private lands Off-Reservation for the Boulder Brush Facilities (see Figure 1-2, APE Maps 1–4, in Appendix I). The maximum extent of disturbance from all the alternatives under consideration within the APE in which the wind facility and transmission line would be constricted would ultimately be smaller than the APE; this area of direct impacts (ADI) comprises up to 800 acres on the Reservation and 200 acres on private land.

The inventory of cultural resources included record searches and surveys to adequately identify and describe specific cultural resources within each APE, including a 0.25-mile buffer surrounding the APE for the portion on the Reservation and a 1-mile buffer for the Off-Reservation portion. As detailed in Table 4-1 of Appendix I, a total of 146 archaeological resources have been identified within the APE, including 80 archaeological sites, 41 of which are within the ADI; of those 41 sites, 2 are eligible for listing in the NRHP. Also, as detailed in Table 4-4 of Appendix I, 4 historic built environment resources were identified within the APE, 3 of which are within the ADI; 1 of these is eligible for listing in the NRHP.

During the course of surveys and evaluations of this Project, more than 15 Native American monitors participated in fieldwork, and any Native American input during the survey would have been documented in the daily survey log, specifically information regarding Traditional Cultural Properties or specific areas of Tribal concern encountered during survey, should they so desire. No such concerns were expressed, nor were Traditional Cultural Properties identified.

3.7 SOCIOECONOMIC CONDITIONS

This section describes the socioeconomic setting within the study area for this issue area, which includes the Reservation and the surrounding U.S. Census Tract 211. This is generally the same area as San Diego County's Mountain Empire subarea (referred to hereafter as the Mountain Empire subregion).

This section relies in part on the Campo Work Force Plan (Campo Kumeyaay Nation 2014a) and the Campo Comprehensive Economic Development Strategy (Campo Kumeyaay Nation 2014b), which the Tribe prepared to address existing conditions for its workforce, issues associated with unemployment rates, and employment opportunities for Tribal members, as well as other strategies and goals for economic development for the Tribe.

3.7.1 Regulatory Setting

Appendix C provides an overview of the applicable plans, policies, and regulations and existing conditions; historic trends and relevant projections for population and housing; employment and income; environmental justice; public services; and infrastructure and utilities; all of which influence or document the socioeconomic conditions of the Project Area. Policies, plans, and regulations that are discussed in Appendix C include NEPA, Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), the Land Use Code, and the Land Use Plan.

3.7.2 Affected Environment

3.7.2.1 Reservation Social and Economic Environment

There are approximately 150 residences (including trailer homes and residences with no current addresses, as well as the approximately 710 acre Old Reservation located near Campo approximately 3.7 miles west of the Project Site) on the Reservation (Campo Kumeyaay Nation 2014a). According to most current figures, the unemployment rate on the Reservation could be as high as 55%; however, the Campo Workforce Plan found that the figure was likely closer to 30%. Both figures are comparable higher than the countywide unemployment rate of 7.5% (County of San Diego 2016). Children from the Reservation and surrounding communities attend public schools operated by the Mountain Empire Unified School District.

Income and Employment

While recent figures are not available for average annual per capita income on the Reservation, the U.S. Department of the Interior report shows that in 2005 there were no employed members of the Tribe with earned incomes below the federal poverty guidelines (DOI 2005). U.S. Census data, however, suggests that the percentage of the population on the Reservation living below the poverty level exceeds the average poverty percentage of 15% for San Diego County, with approximately 53%–62% of the population on the Reservation below the poverty level in 2010.

Despite some improvement, the lack of economic diversity and resulting lack of jobs on or near the Reservation continue to be problems for the Tribe and contribute to the low level of employment and low incomes. The Tribe maintains a high reliance upon government-funded programs and supplemental income; however, with the acute problems of poverty and unemployment, intensified by the geographic and economic isolation of the Reservation, the Tribe needs to use its primary assets, its land, natural resources, and its people, to create economic development.

On-Reservation Income Sources

The Tribe is working vigorously to diversify its economic base and increase employment opportunities for its members. The Tribe derives earned income from the existing 50 MW Kumeyaay Wind facility and the Golden Acorn Casino. The Golden Acorn Casino is the Tribe's gaming operation, which first opened in August of 2001. In February 2005, the Tribe negotiated a lease and revenue sharing agreement for the Kumeyaay Wind Project, a 25-turbine, 50 MW wind power generation facility that provides electrical power directly to SDG&E. The Kumeyaay Wind Project annually produces power sufficient for about 30,000 homes and saves approximately 110,000 tons a year in GHG emissions, compared with equivalent fossil fuel generation.

The Golden Acorn Casino accounts for most of the jobs on the Reservation, with 38 employees being enrolled members of the Tribe (Campo Kumeyaay Nation 2014a). In addition to the Golden Acorn Casino, the Tribe employs approximately 100 individuals among its various departments and business enterprises:

the General Council employs 11 workers; the Fire Protection District has 16 employees; Campo Environmental Protection Agency (CEPA), employs 6 persons; and the Tribe's sand mining operation, Campo Materials, employs 4 workers. Other employment on the Reservation includes the 5 employees of the Tribe's federally funded preschool at the Campo Education Center, and the 23 employees of the Southern Indian Health Clinic facility, which relocated to a new building in 2004–2005. The small library, formerly located at the Tribal Center, has been relocated to the Education Center; however, due to a lack of funding, no librarian is employed at the Education Center.

Property Values

Off-Reservation property values in the vicinity of the Project Area vary greatly due to lot size, improvements, and home sizes. Two-bedroom, one-bath single-family homes on less than 5 acres recently sold for an average of $235,000. Prices varied from $109,000 to $390,000 for similar homes (Zillow 2019).

However, while the Reservation is near the town of Campo, the land is held in trust by the federal government on behalf of the Tribe. The Tribe apportions the land, but the land is not "owned" by an individual residing on it. Thus, no equivalent comparison can be made of home sale prices on the Reservation because the land valuation system is not the same as non-Reservation lands. Therefore, Off-Reservation property values will not be further analyzed in this EIS.

Utilities Infrastructure

Water is provided by both individual wells and community wells through water distribution systems. No utility sewer services are available on the Reservation except the package wastewater treatment plant at the Golden Acorn Casino. The balance of sanitary sewage disposal is accomplished through the use of septic tanks. Federally regulated community systems are chlorinated to the appropriate federal Safe Drinking Water Act standards.

The objective of the Tribe's Land Use Plan is to develop a long-range water and sewer plan and to promote water conservation and reuse programs on the Reservation. The Tribe requires that all new development demonstrate that adequate water resources exist to meet the demands of a proposed project and that septic tanks can handle any sanitary wastes generated by such project. Vegetation that uses less water will be encouraged for landscaping purposes (if proposed), and irrigation systems must be designed, installed, operated, and maintained to prevent the waste of water. Wastewater reuse will be encouraged (if applicable).

The Reservation has access to electrical service from SDG&E. Some residences use propane based on individual service. SGD&E maintains the Boulevard and Campo substations and connecting transmission line that crosses the Reservation south of I-8.

Health Services

Availability of medical services and facilities is a major concern of Reservation residents. Areas of concern include the provision of ongoing and emergency care. The Southern Indian Health Clinic in Alpine, California, contracts with the Public Health Service to provide health care to the Tribe and six other tribes in the area. Emergency services are provided by Grossmont Hospital in El Cajon. A satellite clinic for Southern Indian Health is currently operating on Church Road. This clinic provides medical, dental, family services, mental health services, domestic violence services, outreach, foster care, and child social services to the Tribe and six other tribes in the area. The Campo Reservation Fire Protection District provides local emergency medical services.

Parks and Recreation

Recreational activities on the Reservation include an off-road motorcycle track north of I-8, a basketball court at the Education Center, and a baseball park. Tribal members enjoy fishing at the pond near Diabold Creek off of Church Road, and many participate in organized league sports in nearby adjacent communities, especially through the Mountain Empire Unified School District. One of the main goals of the Tribe is to create additional opportunities for recreational activities for Tribal members. The Tribe plans to do this by establishing guidelines for developers for the enhancement of recreational facilities on the Reservation such that the specific developments will benefit, thus providing a benefit to Tribal members.

3.7.2.2 Surrounding Social and Economic Environment

The Project is primarily located on the Reservation, which is geographically within in the rural Boulevard Subregional Planning Area, which is part of the larger Mountain Empire Subregional Plan planning area of unincorporated San Diego County (note, however, that only the Boulder Brush Facilities are within the jurisdictional boundaries of the County). Population centers in the region include the unincorporated communities of Jacumba, Boulevard, Campo, Tecate, and Potrero. The U.S. Census Bureau Census Tract 211 consists of generally the same area as the Mountain Empire and includes the Project Site (referred to hereafter as the Mountain Empire subregion).

For purposes of this EIS, discussion of socioeconomic conditions references areas outside the Reservation, including the Mountain Empire subregion, which is generally contiguous with Census Tract 211 and covers almost 900 square miles. Though far larger than the sociological impact area, discussion of the subregion is necessary for consideration of available census data. The Mountain Empire subregion is generally characterized by sparse single-family residential development on large lots. The northern portions of the subregion consist primarily of the Anza-Borrego State Park, agricultural preserves, and other public lands.

Population

The United States takes official census only once every 10 years; therefore, the most accurate information is from 2017. The population in the County was 2,813,833 in 2000; 3,095,313 in 2010; and 3,337,685 in 2017. This increase was approximately 10% between 2000 and 2010, and 7.8% between 2010 and 2017. The population of the Mountain Empire Subregion was 6,402 in 2000 and 6,134 in 2009. This was a decrease in approximately 4.2%.

Minority Population

In San Diego County in July 2018, the minority population comprised approximately 54.4% of the total population and 39% of the total population of the unincorporated county (U.S. Census Bureau 2017). In the Mountain Empire subregion, the minority population totaled 48.2% in 2010 (County of San Diego 2016).

Income and Employment

The median household income in the San Diego region in 2016 was $71,758. In the Mountain Empire subregion, the median household income in 2010 was estimated at $41,250 and the unemployment rate of persons in the labor force was 7%. The overall San Diego County unemployment rate was 7.5% in 2016 (San Diego County 2016).

Poverty Status

In San Diego County, the estimated percentage of people living below the poverty level in 2017 was approximately 13.8% (Stewart 2017). In the Mountain Empire subregion, the percentage of population below the poverty level in 2009 was substantially higher at 20.4% (City Data 2009).

Housing Stock

Throughout the San Diego region in 2017, there were approximately 1,214,208 housing units with a vacancy rate of approximately 4.3%. (U.S. Census Bureau 2017). Housing units in the Mountain Empire subregion totaled 3,376 units with a vacancy of 22% (U.S. Census Bureau 2012).

Area Reservations

With 18 tribal reservations, the County of San Diego has more reservations than any other county in the United States. However, the reservations are very small, with total land holdings of just over 124,000 acres, or about 193 square miles of the 4,205 square miles in the County. Multiple reservations are located throughout eastern San Diego County. The Manzanita Band of the Kumeyaay Nation and La Posta Band of Mission Indians both have reservations located just north of the Reservation. The La Posta Reservation is 3,471 acres, with a population of 18 residents. A casino was opened on the La Posta Reservation in 2007. The Manzanita Reservation is 3,563 acres and has a population of 69 residents (DOI 2012b).

Utilities Infrastructure

Potential sources of water near the Reservation consist of groundwater from wells, local groundwater supplies (predominantly fractured rock aquifers) from the Jacumba Community Services District, and recycled water from the Padre Dam Municipal Water District. Groundwater in the area is located in sedimentary aquifers that are dependent on the rainfall cycle. There are two main drainages or watersheds in the Boulevard area. The community of Boulevard is located in the Mountain Empire Subregion, where groundwater availability varies from location to location, and intensity of development in the region is limited due to groundwater variation and limits.

Schools

Public schools and educational facilities are mandated by the California Department of Education and administered by the County Board of Education and the County Office of Education. The Mountain Empire Unified School District encompasses over 660 square miles and serves the Project Area. The district includes four elementary schools, two middle schools, one high school, and an alternative education program (MEUSD n.d.). Children from the Reservation and surrounding communities attend public schools operated by the Mountain Empire Unified School District. Children attend Clover Flat Elementary and Campo Elementary Schools, in addition to Mountain Empire High School.

Health Services

There are no major hospitals located in southeastern San Diego County. The closest medical center is Kaiser Permanente Children's Hospital, located approximately 35 miles west of the Project Site, and the closest major hospital is Sharp Grossmont Hospital, approximately 50 miles west of the Project Site. The El Centro Regional Medical Center, owned by the City of El Centro, is located approximately 50 miles east of the Project Site in Imperial County.

Parks and Recreation

Many tribal members participate in organized league sports in nearby adjacent communities, especially through the Mountain Empire Unified School District. Additionally, the Reservation is located near Cuyamaca Rancho State Park which offers opportunities for hiking, mountain biking, horse riding, swimming, and hiking (DPR 2019).

3.7.3 Environmental Justice

Data used to assess environmental justice considerations were obtained from the U.S. Census Bureau, Census 2010, which is the most complete and accurate source of demographic data and economic/income data available for the Project Area and surrounding communities. Information was also gathered using the EPA's Environmental Justice online mapping tool (EJSCREEN Report, Version 2018), which relies on data from the U.S. Census Bureau, the EPA, and the Centers for Disease Control and Prevention (CDC).

Information from the San Diego County and San Diego Association of Governments was also accessed for supplemental data.

Data related to the census tract block groups that encompass the Project Area were used to compile information that could be used to distinguish minority and low-income populations. Minorities are defined as individuals who are members of one of the following population groups: Hispanic, African-American, American Indian or Alaskan Native, and Asian or Pacific Islander. The minority population percentage of the Reservation exceeds the San Diego County average: approximately 95% minority for the Reservation as compared to the 54.5% minority population of San Diego County (U.S. Census Bureau 2017) and 48.2% minority population throughout the surrounding Mountain Empire subregion (County of San Diego 2016). American Indian persons made up approximately 95% of the total population on the Reservation.

Based on the 2018 U.S. Federal Poverty Guidelines, low-income populations are persons living below the poverty level, which is $25,100 for a family of four but varies depending on family size (HHS 2018). The percentage of the population on the Reservation living below the poverty level exceeds the average poverty percentage of 13.8% for San Diego County, with approximately 53%–62% in 2010 on the Reservation below the poverty level. In the Mountain Empire subregion, 20.4% of the population was below the poverty level in 2009.

3.8 RESOURCE USE PATTERNS

This section discusses potential impacts to resource use patterns resulting from implementation of the Project. The analysis is based on a review of existing resources; existing technical data; applicable laws, regulations, and guidelines; and technical reports prepared for the Project.

3.8.1 Regulatory Setting

Appendix C, Regulatory Settings, of this EIS provides a summary of the federal regulatory framework and laws, regulations, and standards that govern resource use patterns on the Reservation. Applicable regulations include the Farmland Protection Policy Act.

3.8.2 Affected Environment

3.8.2.1 Hunting, Fishing, and Timber Harvesting

Conditions on the Reservation are not conducive to either modern or traditional hunting techniques, fishing, or timber harvesting activities.

3.8.2.2 Gathering Activities

Many plants were traditionally gathered or harvested, with the acorn being the most important of the plant resources. The Reservation has several areas containing large numbers of acorn-producing oak trees. The Tribe no longer depends on acorn harvesting as a major food source; however, acorns are occasionally gathered as food for ceremonial or recreational reasons. The existing native vegetation

includes many other plants with food or medicinal values and plants traditionally used in the construction of structures and the making of tools and other implements. Today, however, no plant gathering activities take place at the proposed site.

3.8.2.3 Agricultural Uses

In historic times, many plants were harvested on the Reservation for food and medicinal purposes and for the making of tools and structures. Today, agricultural activities on the Reservation primarily consist of subsistence farming activities and cattle grazing; however, cattle grazing has limited economic value for the Tribe, and agriculture in general has not proven to be of significant benefit to the Tribe in terms of employment or revenue. The land on the Reservation is not high-quality pasture or grazing land, as scrub land is only suitable for a few head of cattle per several acres. Typical grazing animal unit (AU) is one cow of 1,000 pounds and a calf as old as 6 months. An animal unit month (AUM) is the amount of forage required by 1.0 AU for 1 month. Scrub land has one of the lowest AUM habitats, meaning it requires more land to feed 1.0 AU, typically ranging from 10 to 20 acres per 1.0 AUM. Little crop agriculture occurs on the Reservation, as the soil is mostly graded sand with silt. Rock outcroppings make soil work difficult over large areas. The short growing season at the altitude of the Reservation (about 3,500 feet above mean sea level) and the shortage of irrigation water make agriculture a marginal operation in the area and not a feasible or reliable sole income or source of food for the Tribe and community.

3.8.2.4 Fire Management

Muht Hei Inc. and CEPA provide code enforcement through their planning/permitting consultants and through the final review of all project building plans, including consideration of setbacks and fire and building codes. In addition, the planning/permitting consultants monitor the actual construction of as-built drawings and completed structures of all projects to ensure compliance with the Tribe's Land Use Code and the Land Use Plan (Campo Band of Mission Indians 2010).

As with the Tribe's required codes and standards to control development and construction on the Reservation for residential development, the same standards that must be met by residential construction apply for all projects, which must comply with the International Fire Code, 2009 Edition.

In addition, the Tribe's Land Use Plan includes a Public Facilities and Services Element for Fire Services, which identifies the goals, objectives, policies, and standards of the Reservation and guides the Tribal members in coordinating projects, activities, and growth on the Reservation to work in harmony toward creating a desirable community. The applicable issues, objectives, programs, and standards are described below.

Issues

Fires in undeveloped areas, termed "wildland fires," result from the ignition of accumulated brush and woody material. Urban fires result usually from sources within the structures themselves. Fire hazards of

this type are site and structure specific. Availability of firefighting equipment and decreased response times are essential in minimizing losses.

Many fires and fire losses can be avoided if proper building procedures and materials are used. In addition, it is important to inform the public about fire hazards and how to avoid them.

The Reservation has a full-time fire department that monitors the fuel loads over the Reservation and commits resources to reducing fire hazards through their fuel reduction program.

Objective

The Tribe's primary objective is to reduce fire hazards and losses through the promotion of public awareness and enforcement of fire prevention regulations and standards and construction standards.

The Fire Department will continue to monitor and act on the need for fuel reduction on the Reservation. The Fire Department will coordinate their recommendations with the Land Use Plan to ensure compatibility and complementary purpose.

Program

The Tribe will enforce fire standards by its adoption of construction codes for all developments on Tribal lands. All developers are expected to comply with these codes.

Land Use Standards

All new developments must have an adequate level of fire protection. Any additional protection and prevention measures deemed necessary by the Tribe shall be implemented by the developer at his or her expense.

3.8.2.6 Mining

The Campo Materials Corporation operates a sand mining quarry within the Reservation. However, mining activities on the Reservation are limited and no other marketable mineral deposits have been identified.

3.8.2.7 Recreation

The Tribal Center building is one of the recreational facilities located on the Reservation. In addition, the Reservation opened its Golden Acorn Casino at the intersection of Old Highway 80 and Crestwood Road in 2001. It provides Las Vegas-style casino gambling and contains a restaurant and an events center. In addition, the Reservation has an off-road motorcycle track north of and adjacent to I-8 located on Manzanita Road (also known as Canebreak Road), northeast of the Casino; a basketball court in the Education building; and a baseball park. Some Tribal members fish at the pond along Diabold Creek. Most other recreational activity occurs in Off-Reservation facilities. Numerous Tribal members participate in organized league sports in nearby communities (Goff, pers. comm. 2012).

3.9 TRAFFIC AND TRANSPORTATION

This section describes the existing traffic and transportation conditions in the traffic study area that includes intersections, roadways, and freeway segments that would provide access to the Project Area. The information presented in this section is summarized from the Traffic Impact Analysis (TIA) (Dudek 2019) prepared for this Project, which is included as Appendix J to this EIS.

3.9.1 Regulatory Setting

Construction of the Project could potentially affect traffic flow, access, transit operations, and bicycle facilities on public streets, roadways, and highways. Therefore, the developer and/or the construction contractor(s) could be required to obtain encroachment, construction, excavation, and/or traffic control permits, or similar legal agreements from the CEPA, BIA, the County of San Diego Department of Public Works, California Department of Transportation (Caltrans), and any other public agencies responsible for the affected roadways and other applicable rights-of-way. Such permits may be needed where transmission lines would cross rights-of-way, as well as where construction activities would require the use of roadway and highways/rights-of-way and easements for parallel installations. Permitting agencies may include the CEPA, the County of San Diego Department of Public Works, and possibly Caltrans. For proposed railroad crossings, the Metropolitan Transportation System would issue permits. In addition, the Project would be consistent with the requirements of the leases.

The regulatory setting for the Project is further described in Appendix C. Regulations include those promulgated by the Federal Aviation Administration, Caltrans, and the Tribal Land Use Plan (Circulation Element and Land Use Standards).

3.9.2 Affected Environment

3.9.2.1 Existing Street Network

Figure 2 in the TIA (see Appendix J) shows an existing conditions diagram, including unsignalized intersections and lane configurations within the traffic study area. The traffic study area is comprised of eight intersections and seven roadway segments, including one highway segment (SR-94) and three freeway segments (I-8) that would be most impacted by construction of the Project. The traffic study area intersections include:

1. Crestwood Road/I-8 westbound ramps
2. Crestwood Road/I-8 eastbound ramps
3. Crestwood Road/Old Highway 80
4. Old Highway 80/Church Road – Golden Acorn Casino Driveway
5. Old Highway 80/Live Oak Trail
6. Church Road (BIA Route 10)/Campo Road (SR-94)

7. Ribbonwood Road-SR-94/I-8 westbound ramps
8. Ribbonwood Road-SR-94/I-8 eastbound ramps

The traffic study area roadway segments include:

1. Crestwood Road, I-8 westbound ramps to I-8 eastbound ramps
2. Crestwood Road, Old Highway 80 to Church Road
3. Old Highway 80, Church Road to Live Oak Trail
4. Old Highway 80, Live Oak Trail to Campo Road (SR-94)
5. Church Road, Old Highway 80 to Campo Road (SR-94)
6. Ribbonwood Road, north of I-8
7. Campo Road (SR-94), BIA Route 15 to Church Road

The traffic study area freeway segments include:

1. I-8, Cameron Road to Crestwood Road–Old Hwy 80
2. I-8, Crestwood Road–Old Hwy 80 to Ribbonwood Road–SR-94
3. I-8, Ribbonwood Road–SR-94 to Carrizo Gorge

Descriptions of each street that passes through or is located entirely within the study area are provided in Appendix J (the TIA). Roadway classifications were determined from a review of the County's adopted General Plan Circulation Element.

3.9.2.2 Existing Traffic Volumes

Figure 3 in the TIA (see Appendix J) depicts the Existing Traffic Volumes for weekday AM and PM peak hour and daily conditions.

Peak Hour Intersection Turning Movement Volumes

AM and PM peak hour intersection turning movement volume counts were conducted at the traffic study area intersections in September 2018. Appendix A of the TIA contains the manual count sheets.

Roadway Segment Volumes

Average daily traffic volume counts were conducted along the traffic study area street segments in September 2018. Appendix A of the TIA also contains the road segment traffic data in greater detail.

Freeway Segment Volumes

Annual average daily traffic and peak hour volumes for freeway segments were obtained from the Caltrans Traffic Census Program webpage for the year 2017 (most recent available). Appendix C of the TIA contains the Caltrans data reports used to determine peak hour volumes on the freeway segments.

3.9.3 Analysis Approach and Methodology

Level of service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe an analysis of factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS designation is reported differently for unsignalized roads, signalized roads, and freeway segments.

3.9.3.1 Intersections

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and level of service were determined based upon the procedures found in Chapter 19 of the 2010 Highway Capacity Manual (HCM), with the assistance of the Synchro (Version 10) computer software. Unsignalized intersection calculation worksheets and a more detailed explanation of the methodology are provided in Appendix J.

3.9.3.2 Roadway Segments

Although the Reservation is not subject to County jurisdiction, roadway segment analysis uses a comparison of daily traffic volumes to the County of San Diego's Public Road Standards, March 2012, Average Daily Vehicle Trips (Table 3 of Appendix J) for purposes of evaluating the Project's effects. This table provides level of service thresholds for different street classifications, based on traffic volumes, and travel lanes analyzed in the traffic study area.

3.9.3.3 Freeway Segments

All freeway mainline segments analyzed are under the jurisdiction of Caltrans. Per Caltrans requirements, Caltrans facilities were analyzed using the HCM methodology with the Highway Capacity Software 7.5. The freeway analysis is based on assessing freeway operations based on traffic volumes, freeway network and other segment-specific characteristics and reporting freeway volume-to-capacity ratio, speed, and density. Highway Capacity Software calculation worksheets and a more detailed explanation of the methodology are provided in Appendix J.

3.9.4 Existing Service Levels

The following is a summary of the roadway operations under existing traffic volume and capacity conditions.

3.9.4.1 Peak Hour Intersection LOS

Table 3.9-1 (see Appendix D to this EIS) summarizes the existing intersection operations throughout the traffic study area. This table shows that the minor-street critical movement for each of the eight traffic study area intersections is calculated to currently operate at LOS B or better during the AM and PM peak hours.

3.9.4.2 Roadway Segment LOS

Table 3.9-2 (see Appendix D) summarizes the existing roadway segment operations throughout the traffic study area. This table shows that based on the existing daily traffic volumes and capacity of the roadways, all the roadway segments in the traffic study area currently operate at LOS C or better during the average daily conditions.

3.9.4.3 Freeway Segment Levels of Service

Table 3.9-3 (see Appendix D) summarizes the existing freeway mainline segment operations throughout the traffic study area. This table shows that based on the existing peak hour traffic volumes, capacity, and density of the freeway segment, all the segments in the traffic study area currently operate at LOS B or better during the AM and PM peak hours.

3.10 NOISE

This section describes the existing noise levels in the Project Area and adjacent areas that potentially would be affected due to implementation of the Project alternatives. The information in this section is summarized from the Acoustical Analysis Report (see Appendix K to this EIS) that was prepared for this Project. All technical detail and noise modeling information is contained in Appendix K. The study area for the noise evaluation considered the entire Reservation, Boulder Brush Boundary as well as properties within approximately 1 mile of the Reservation Boundary and Boulder Brush Boundary.

3.10.1 Regulatory Setting

Various federal agencies have established rules and guidelines addressing noise and vibration. There are no specific federal standards developed for assessing noise from construction and operation of projects on the Reservation. However, the EPA has guidance that recommends 55 A-weighted decibels (dBA) day/night equivalent sound level (L_{dn}) as an exterior noise level threshold for noise-sensitive receptors such as residences. For assessing construction noise, the Federal Transit Administration offers guidance metrics, such as 80 dBA energy equivalent level (L_{eq}) energy-averaged over an 8-hour period.

It is generally accepted that the average healthy ear can barely perceive a noise level change of 3 decibels (dB) (Caltrans 2013). A change of 5 dB is readily perceptible, and a change of 10 dB is perceived as twice or half as loud. Lacking applicable local or regional regulations that specify limits on allowable increase over existing ambient levels, a 10 dB not-to-exceed relative criterion can be useful as guidance and would

be comparable to California Energy Commission significant impact criteria for projects under its permitting authority (which does not include this Project). The San Diego County Noise Ordinance sets limits on the time of day and days of the week that construction can occur, as well as quantified limits on construction and operation noise levels, for any activities on private lands.

3.10.2 Affected Environment

Existing Noise Environment

Existing Noise Sources

The Project Area is largely undeveloped, though development includes utilities and recreational, commercial, agricultural, and residential uses. Land uses within the Reservation are predominantly residential but also include several institutional uses north of SR-94, Kumeyaay Wind, and the Golden Acorn Casino. Residential land uses surround the Reservation to the north, south, east, and west. Boulder Brush Boundary includes residential uses to the south and east and federal lands to the north and west.

The primary existing noise source within the Project Area is vehicular traffic. Other existing noise sources include noise from rural residential land uses. Sound from birds, rustling leaves, distant conversations, existing wind turbines (including Kumeyaay Wind and Tule Wind) and distant aircraft contribute to the ambient noise environment.

Existing Noise-Sensitive Receptors

Sensitive noise receptors are located at various locations in proximity to the overall footprints of the Project alternatives. Sensitive receptors are located both On-Reservation and Off-Reservation. Almost all of the sensitive receptors are residential homes. Other sensitive receptors On-Reservation are generally located along Church Road and include facilities such as the Campo Tribal Hall, the Kumeyaay Head Start preschool, and the Campo Health Center. The nearest Off-Reservation noise-sensitive receptor land use (an existing residence) is located approximately 130 feet to the south of the southern boundary of the Project Area. However, there is a residence approximately 80 feet from Ribbonwood Road, which would be improved with construction activities as an access route to the Boulder Brush Facilities. A total of 76 possible turbine installation sites have been identified and studied in the operational noise analyses (see Appendix K), even though only a maximum of 60 turbines can be built under the Campo Lease, which may over-estimate actual noise exposure conditions to sensitive receptors and include turbine positions that may conflict with proposed Campo Lease terms that preclude possible sites within 0.25 miles of a residential structure or tribal building.

Existing Noise Measurements

A site visit was conducted to measure existing ambient noise levels in the vicinity of the Project Area. The existing noise environments were measured on September 5, September 6, and September 7, 2018.

Thirteen noise measurement locations were surveyed. These locations are depicted as LT1 through LT13 in Appendix K. Based on the sound level measurements, three surveyed locations (LT4, LT5, and LT7) have existing L_{dn} values greater than 55 dBA. The other surveyed locations have existing L_{dn} values at or below 55 dBA. Based on the measurement data, existing hourly ambient noise levels range from 31 dBA to 70 dBA $L_{eq(hr)}$ at the surveyed locations. Statistical noise data was also collected during the measurements. The lowest L_{90} results for the surveyed locations range from 29 dBA to 36 dBA, which approximate the quietest measured background conditions over which louder intermittent and regular sound sources collectively contribute to the outdoor "ambient" sound environment for the Project Area under study.

3.11 VISUAL RESOURCES

This section describes the visual resources present on the Project Site. The information presented in this section is summarized from the Visual Impact Assessment (VIA), provided as Appendix L of this EIS. For the purposes of the evaluation in this EIS, inventory and analysis of visual resources was conducted using a hybridized evaluation methodology combining elements of federally adopted guidelines including those provided by the Federal Highway Administration, the Bureau of Land Management, and the U.S. Forest Service. However, because the Tribe's and BIA's jurisdiction is limited to the Campo Wind Facilities, no jurisdictional authority beyond that of the Tribe and the BIA should be inferred, and these guidelines are used for informational and analysis purposes only.

3.11.1 Regulatory Setting

Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards related to visual resources. The relevant laws, regulations, and regulatory entities for this analysis include the Federal Highway Administration Visual Resource Guidelines, the Federal Land Policy and Management Act, the Bureau of Land Management Visual Resource Guidelines, the U.S. Forest Service, National Trails, federal Scenic Byways, and the Federal Aviation Administration.

3.11.2 Affected Environment

The affected environment for visual resources associated with this Project includes the Project Site and all areas with potential views of the Project alternatives. This discussion describes the existing visual setting and considers the anticipated visual sphere of influence of the Project. In addition, the existing scenic quality, scenic integrity, and identification of key observation points (KOPs) are discussed below. The VIA (Appendix L) provides photos from each of the KOPs.

3.11.2.1 Existing Visual Setting

The Project Area is situated in southeastern San Diego County and generally consists of largely undeveloped high desert rolling hills. The topography of the Project Site and surrounding area consists of moderate to steep terrain atop a semi-arid plateau, which is adjacent to the Laguna Mountains on the west and slopes descending to valleys to the east. Broad desert plains, alluvial fans, and shallow valleys,

including McCain Valley and Jewel Valley, separate local mountains and prominent topography in the Project Area and surrounding area. Valleys are dominated by coast live oak woodland, non-native grassland, and southern willow scrub vegetation. The Project Area and surrounding area supports a variety of habitat types and vegetation communities and is dominated by chamise chaparral and mixed chaparral. Various large rock outcrops of light-colored boulders are scattered throughout the Project Site and surrounding area and regularly distributed along ridgelines.

Development in the Project Area and surrounding area is generally sparse, although large-scale development is present and highly visible from public vantage points, resulting a visual pattern of moderate integrity and moderate intactness. Existing wind turbines atop the Tecate Divide and within the McCain Valley are prominent throughout the area. The Golden Acorn Casino is located adjacent to and south of the I-8 corridor and is highly visible. The southern portion of the Project Area and surrounding area largely consists of scattered rural residential development, tribal governmental and public service offices, and linear transmission lines. For a more in-depth discussion of the existing visual setting of the Project Site and surrounding area, please see Appendix L.

3.11.2.2 Viewshed

The viewshed identifies who has a view of any element of the Project alternatives. The viewshed for the Project represents the area within which the Project alternatives could be seen given unobstructed conditions (i.e., no structures or vegetation in the intervening landscape). The Project viewshed is defined by the presence of steep mountainous terrain to the northwest, north, and northeast, and more moderate hilly and valley terrain to the east and west of the Reservation. The farthest distance at which potentially significant visual effects could occur is approximately 10 miles. A 10-mile radius is referenced since views over 10 miles are considered “distant” views and seldom have the ability to be significant (i.e., not visible within the foreground (0 to 0.5 miles), middleground (0.5 to 5 miles), or background (5 miles to horizon) zones). Additional description of the determination of the viewshed for the Project is located in the VIA prepared for the Project alternatives (Appendix L).

3.11.2.3 Visual Quality/Character

Visual resources components include those elements used in the assessment of potential impacts. They include an evaluation of existing visual quality, delineation of landscape character units (LCUs), and the identification of sensitive viewing areas and KOPs.

Visual quality is best described as the overall impression retained after traveling through an area. The key factors in a landscape that affect existing visual quality are landform, vegetation, water, color, influence of adjacent scenery, scarcity, and man-made modifications to the landscape. A relative visual quality rating of A (High), B (Moderate), or C (Low) is assigned to each LCU, as defined in Appendix L.

3.11.2.4 Landscape Character Units and Scenic Quality Rating Units

As part of the VIA, the Project Area was classified into four distinct LCUs and scenic quality rating units. An LCU is a portion of the regional landscape that can be defined as a cohesive visual unit that exhibits consistent elements and features that create a unified view. As explained in the VIA (Appendix L), the Project Area was classified as either Type B or Type C[6] (see Table 3.11-1 and Figure 3.11-1, provided in Appendices D and E of this EIS, respectively).

3.11.2.5 Viewer Sensitivity

The primary viewer groups provided views to the Project Site consist of motorists (interstate, state highway, and local roads), residents, and recreationists. Motorists would represent the largest viewer group provided views to the Project Site. Included in this group are eastbound and westbound motorists on I-8, SR-94, and Old Highway 80 as each of these facilities traverses the Reservation. The expectation of motorists for scenic views would generally be consistent with the expectations of a highway corridor possessing existing wind turbine facilities atop the Tecate Divide and through McCain Valley. Due to the shorter durations of exposure, viewer sensitivity within this group is generally low to moderate.

Tourists and other recreationists would also be provided views of the Project Site from the surrounding public lands , including the Pacific Crest National Scenic Trail, Cuyamaca Rancho State Park, McCain Valley Resource Conservation Area, Bureau of Land Management Jacumba Mountains Wilderness, and Anza-Borrego Desert State Park. It is anticipated that viewers in these locations, which range from 5 to 15 miles away, could experience effects similar to those analyzed at KOP locations; however, given the topographical variety and varied vegetated states within this area, it is likely that views of the Project would be occasional and often obstructed. Recreational viewers (recreationists), would have direct foreground views, indirect and obscured views to the Project Site, and proposed wind turbine locations atop higher elevation ridges. Viewer sensitivity within this group is generally moderate to high.

Scattered rural residential development is located in unincorporated County of San Diego communities to the east, south, and west of the Project Site. These communities include Campo (southwest of the reservation) and Live Oak Springs, Tierra Del Sol, and Boulevard (east and southeast of the reservation). In addition, rural residences are located north of I-8 and along Ribbonwood Road (technically within Boulevard) and approximately 8 miles to the east in Jacumba. Depending on proximity, some nearby residents may have direct, unobscured views to new turbine locations. However, the majority of views to the Project Site from developed residential land uses in the surrounding area would be partially obstructed by intermediate vegetation, landscaping, or development. Due to the long-term duration of views to the

[6] Type B areas have above-average diversity or interest, providing some variety in form, line, color, and texture. The natural features are not considered rare in the surrounding region but provide adequate visual diversity to be considered valuable. Type C areas have minimal diversity or interest and are representative natural features. They generally have limited variation in form, line, color, or texture in the context of the surrounding region. They generally contain highly noticeable discordant cultural modifications (e.g., substation, transmission lines, and other cultural modifications), which can reduce the inherent value of the natural setting.

Project Site (where available) and high awareness to visual change in the environment, viewer sensitivity within this group is generally moderate to high. For additional discussion regarding viewer groups and sensitivity, please see Appendix L.

3.11.2.6 Sensitive Viewing Areas and KOPs

KOPs were selected to evaluate the existing visual character and visual quality of a Project Area and to provide an understanding of existing conditions and aid the assessment of potential change in visual environment. KOPs were located on roads or areas of potential use where the visual effects of the Project would be clearly displayed and include existing visible development, populated areas, and natural vegetation and terrain. The KOPs selected for the Project are listed in Table 3.11-2 (see Appendix D), and photographs from each of the seven KOPs are included in Figures 3.11a through 3.11e along with an extensive description of each KOP (see Appendix L).

3.12 PUBLIC HEALTH AND SAFETY

This section discusses potential effects on public health and safety due to exposure to or creation of hazards that may occur with implementation of the Project alternatives. The analysis is based on a review of existing resources; existing technical data; applicable laws, regulations, and guidelines; and technical reports prepared for the Project. This includes a Preliminary Environmental Site Assessment (Preliminary ESA) for the Reservation, which was prepared to assess existing potential hazards and hazardous materials in the Project Area and is included as Appendix M-1 to this EIS, and a Phase 1 ESA prepared for private lands through which the Boulder Brush Facilities extend (Phase 1), included as Appendix M-2 to this EIS. Collectively, these are referred to as "Project ESAs" in this EIS.

3.12.1 Regulatory Setting

Appendix C, Regulatory Settings, provides a summary of the federal regulatory framework and laws, regulations, and standards that govern public health and safety in the Project Area. Applicable laws and regulations include the Resource Conservation and Recovery Act; the EPA hazardous waste definition (EPA 2018a); the EPA Region 9 Regional Screening Levels (EPA 2018b); the Clean Water Act; the Clean Air Act; Oil Pollution Prevention regulations (40 CFR Part 112); the Occupational Safety and Health Administration regulations (OSHA 2012); the National Fire Protection Association codes, standards, practices, and guides; the Federal Wildland Fire Management Policy (IFWFPR Working Group 2001); the National Fire Plan; the International Fire Code; and the International Wildland Urban Interface Code.

3.12.2 Affected Environment

The objective of the Project ESAs conducted for the Project Area, which included the entire Campo Reservation and the private parcels through which the Boulder Brush Corridor extends, was to determine whether there are any recognized environmental conditions in the Project study area (see Appendix M-1 and M-2 for a description of the study area for public health and safety). Both Project ESAs detail physical setting information such as hydrology; geology; and water, oil, and gas wells, as provided by a GeoSearch

E RecSearch Report (see Attachment A of Appendix M-1 (performed on July 25, 2018) and Attachment J of Appendix M-2 (performed on June 6, 2018) of this EIS) performed on July 25, 2018. The GeoSearch searches of regulatory records were conducted according to ASTM E 1527-13, using standard search radii; they provided a listing of sites within an approximately 1-mile radius of the Project Site that are listed on one or more environmental regulatory databases (ASTM 2013). Information in these listings includes the site name, location of the site relative to the Project Site, regulatory database listing, and the status of the listed site. The records search did not identify the Project Site on any regulatory list, although some adjoining properties and facilities were identified.

3.12.3 Other Public Health and Safety Issue Areas

Fire Hazards and Fire Protection

The Project Site is located in a High to Very High Fire Hazard Severity Zone, as statutorily designated by the California Department of Forestry and Fire Protection (CAL FIRE) (CAL FIRE 2007). The Project Site is located in an area with historically fire-adapted vegetation communities, including chaparral, scrub, and oak woodlands, which are vegetation communities that experience occasional wildfire and can burn in an extreme manner under the occasional severe fire weather (dry and windy) conditions that occur in the area. Based on the region's fuels, fire history, and expected fire behavior, severe fires may occur, with moderate- to severe-intensity fire expected to occur in the Project Area. The rocky terrain and more open fuel beds at the Project Site result in the anticipated moderate-intensity fire behavior. Fire protection in the Project Area is shared by several agencies, with the Campo Reservation Fire Protection District (CRFPD), the San Diego County Fire Authority (SDCFA), and CAL FIRE providing significant resources. The CRFPD serves the Reservation, including the Campo Wind Corridor, as well as the La Posta, Manzanita, Jamul, and Ewiiaapaayp Indian Reservations and the surrounding unincorporated lands. The CRFPD also has mutual aide agreements with Off-Reservation fire departments, including SDCFA, CAL FIRE, and the Boulevard Fire and Rescue Department.

CRFPD handles the management and prevention measures associated with fire issues on the Reservation, and works with CAL FIRE when needed as a responding agency when ground support and air attack assistance are needed for fire suppression. Through a statewide agreement and an annual statewide operating plan between the BIA Pacific Region and CAL FIRE, CAL FIRE is the primary wildland fire response agency for all federal Native American reservation land, except Hoopa and Tule River. The BIA Pacific Region additionally has an agreement with the Tribe to provide wildland fire protection. Both have wildland protection responsibility, but CAL FIRE responsibility is primary in wildlands (AECOM 2012).

The developer's commitment to Tribal and County fire codes and additional measures required for the Project directly address the fire concerns associated with this Project's location. Tribal and County fire codes address combustible materials within the Project vicinity, usage of heavy machinery, and emergency access and circulation. The Tribe enforces fire standards through its adoption of construction codes for all development on Tribal lands, including the International Building Code, National Electrical Code, and

International Fire Code. While not applicable under the lease, the developer has agreed to comply with these codes, as enforced by the Campo Environmental Protection Agency. The Project will be developed in accordance with the Resource Development Plan approved by the BIA as part of the lease approval process. All new development must have an adequate level of fire protection. Any additional protection and prevention measures deemed necessary by the developer and the Tribe would be implemented by the developer at the expense of the developer.

Schools

Schools are considered sensitive receptors in terms of the children in attendance and their relative location to recognized environmental conditions. Children living on the Reservation currently attend kindergarten through 12th grade at Off-Reservation schools and are provided transportation by bus to these schools. The nearest schools are Clover Flat Elementary School (2nd through 8th grade), approximately 3 miles east of the Reservation; Campo Elementary School (kindergarten through 7th grade), approximately 5 miles west of the Reservation; and Mountain Empire High School (9th through 12th grade), approximately 4 miles west of the Reservation. The Reservation operates a preschool at the Tribal headquarters (AECOM 2012).

Airports and Airstrips

Aboveground towers, turbines, and/or transmission lines may pose a threat to aviation safety if they are located within an airport land use plan or flight zone. The nearest airport to the Project Site is the Jacumba Airport, approximately 15 miles southeast of the Reservation. According to the Jacumba Airport Land Use Compatibility Plan, the Project Site is not located within the Jacumba Airport Influence Area for noise compatibility, safety, overflight, or airspace protection; therefore, the Project would not be subject to review by the Airport Land Use Commission (SDCALUC 2011).

In addition, the Reservation is located approximately 2 miles west of a former private airstrip on Rough Acres Ranch. Located north of Interstate 8 and west of McCain Valley Road, this unregistered private airstrip includes an approximately 3,200-foot-long gravel runway and an adjacent hangar and residence. However, the landowner quitclaimed the right to serve the property with fixed-wing aircraft via an aviation restriction/easement (County of San Diego 2015). For medical and other emergency purposes, the Tribe operates a helipad at the Golden Acorn Casino.

3.13 OTHER ISSUES DISCUSSED IN THIS EIS

This section describes the environmental settings associated with the Project with respect to wind production tax credits (PTCs), wind flow and downwind effects, electromagnetic fields (EMFs), and shadow flicker in the Project Area and surrounding area. These issues were identified during the public scoping review process.

3.13.1 Wind Production Tax Credit

Production Tax Credits (PTCs) were a part of the Energy Policy Act of 1992 (102nd Congress H.R.776.ENR, abbreviated as EPACT92) and are intended for wind and bioenergy resources. The purpose of the PTC is to support renewable energy based on the environmental, economic, and energy security benefits that renewable energy resources can provide. The PTC provides a 2.1 cent per kilowatt-hour benefit for the first 10 years of a renewable energy facility's operation. It is only available for wind energy equipment located within the United States and only if the electricity produced is sold to an unrelated party. Any unused credits may be carried forward for up to 20 years following generation.

3.13.2 Wind Flow and Downwind Effects

The "downwind" effect refers to the possibility that wind turbines are forming disturbances in the atmosphere and are therefore potentially impacting local and global weather patterns. An article published in the Proceedings of the National Academy of Sciences of the United States of America and a related article in Scientific American (Biello 2010) discuss the concern that wind turbines change local temperatures and the possibility of very large-scale wind farms affecting global weather patterns. The blades on the turbines possibly "chop up" the air and potentially mix different atmospheric layers. As stated in Biello (2010), "according to temperature readings from one of the oldest wind farms in the U.S., near Palm Springs, Calif., the turbines make it warmer at night and cooler during the day, generally speaking," with respect to ground temperatures. Mean temperatures may not change, however, as the warming and cooling would cancel one another out.

Similar to the downwind effect is the "wake effect," as discussed by the National Oceanic and Atmospheric Administration (2011), which is similar to the watery wakes behind boats. These are ripples or waves and other disturbances formed in the atmosphere downstream of wind turbines. These invisible ripples can affect the atmosphere and influence downstream turbines. The wakes can potentially damage turbines and affect turbine efficiency, and when turbines are located directly behind other turbines, they could potentially get less energy from the wind and generate less power. Understanding the wake effect helps improve design standards, increase efficiency, and reduce energy costs.

Both the downwind effect and the wave effect continue to be studied to allow scientists and the general public to better understand the potential impacts of turbines on the overall atmosphere, both locally and globally.

3.13.3 Electromagnetic Fields

Researchers have questioned the potential effects that electromagnetic fields (EMFs) from many sources, including wind turbines, power lines, and substations, have had on the environment. Many early studies focused on interactions with the electric fields from power lines. The subject of magnetic field interactions began to receive additional public attention in the 1980s as research levels increased. A substantial amount of research investigating both electric and magnetic fields has been conducted over the past several

decades; however, much of the research regarding EMFs and public health risks remains contradictory or inconclusive (Van Kamp and Van den Berg 2018).

EMF concerns are not specific to wind energy but are associated with all electrical transmissions from electronic devices (including cell phones, microwaves, and other commonly used devices), power lines, and generating stations. According to the National Collaborating Centre for Environmental Health (Hardell 2017), "EMF around wind farms can originate from the grid connection lines, wind turbine generators, electrical transformers, and underground network cables. The grid connection lines are similar to other power lines and generate low levels of EMF, comparable to those generated by household appliances." The wind turbine generators are typically too high to generate EMF that would affect ground level, and the underground network cables "effectively generate no EMF at the surface because of the close placement of phase conductors and screening of the cables" (National Collaborating Centre for Environmental Health 2013).

According to a literature review by Sierra Club Canada (2011), although wind power produces EMFs like any other source of power or power transmission, there are two major benefits to wind power in respect to EMF safety. First, as discussed previously, wind turbines are generally 300 feet or more above the ground, which means the EMF created by the production of energy is above people and residences at ground level. Second, most of the power from turbines is transmitted by underground cables on site, which produce effectively no EMF. Similarly, with respect to overhead transmission infrastructure, the California Public Utilities Commission (CPUC), after a nearly 15-year investigation, concluded that it was unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences (CPUC 2019). This decision was concluded based on the lack of scientific or medical conclusions about potential health effects from utility electric facilities and power lines. The CPUC's Energy Division was directed, through the decision, to pursue and review all available studies regarding EMF, and to review scientific information and report on new findings.

3.13.4 Shadow Flicker

Shadow flicker is where a wind turbine's moving blades may cast a moving shadow on locations within a certain distance of a turbine. These moving shadows are called flicker and can be a temporary phenomenon experienced by nearby residents. The impact area depends on the time of year, time of day and the physical characteristics of the turbines. Shadow flicker generally occurs during low-angle sunlight conditions, typically during sunrise and sunset. However, when the sun angle gets very low (less than 3°), the light has to pass through more atmosphere and becomes too diffused to form a coherent shadow. Shadow flicker does not occur when the sun is obscured by clouds or fog, at night, or when the source turbine(s) are not operating. Shadow flicker intensity is defined as the difference in brightness at a given location in the presence and absence of a shadow. Shadow flicker intensity diminishes with greater receptor-to-turbine separation distance.

Shadow flicker frequency is related to the wind turbine's rotor blade speed and the number of blades on the rotor. From a health standpoint, such low frequencies are harmless. For comparison, strobe lights used in

discotheques have frequencies that range from about 3 hertz (Hz) to 10 Hz (1 Hz = 1 flash per second). As a result, public concerns that flickering light from wind turbines can have negative health effects, such as triggering seizures in people with epilepsy, are unfounded. The Epilepsy Action (working name for the British Epilepsy Foundation) states that there is no evidence that wind turbines can cause seizures (Epilepsy Action 2008). However, they recommend that wind turbine flicker frequency be limited to 3 Hz.

Shadow flicker is not regulated in applicable state or federal law, and there is no permitting trigger with regard to hours per year of anticipated impacts to a receptor from a wind energy project. Due to the significant growth of the wind energy industry in recent years, some states have published model bylaws for local governments to adopt or modify at their own discretion, which sometimes include guidance and recommendations for shadow flicker levels and mitigation. However, a general precedent has been established in the industry, both in the United States and abroad, that less than 30 hours per year of shadow flicker impacts is acceptable to receptors in terms of nuisance and is well below any health hazard thresholds.

Shadow flicker analysis is performed through computer-based mapping and modeling and is highly predictable, because specific parameters are used to determine the time of day, days of the year, turbine height, and wind speeds. According to a study by the U.S. Department of Energy's Lawrence Berkeley National Laboratory, as cited by the American Wind Energy Association (2018), 92% of people living within 5 miles of a wind farm report positive or neutral experiences with the wind farm.

General setback requirements are typically enough to mitigate the shadow flicker. Shadow flicker, when it does occur, typically lasts just a few minutes near sunrise or sunset and only occurs at certain times of the year, as it is dependent on the angle of the sun.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES (EFFECTS)

This chapter analyzes the potential direct and indirect effects to each resource area from the Project. Cumulative effects are analyzed in Section 4.14.

4.1 LAND RESOURCES

This section discusses effects on existing topography, geology, soils, and paleontological resources that may occur with implementation of the Project alternatives.

4.1.1 Impact Indicators

The Project alternatives would have adverse effects to topography, soils, geology, or paleontological resources if they are found to:

- Result in significant damage to unique geologic/topographic features.

- Result in structural instability of Project-related or other existing structures due to accelerated soil erosion.
- Be located on a geologic unit that is unstable.
- Result in damage to Project components due to seismic events (earthquakes), including fault rupture, and seismically induced ground shaking that results in landslides, liquefaction, settlement, lateral spreading, and/or surface cracking, and exposes people or structures to adverse effects.
- Result in damage to paleontological resources.

4.1.2 Effects

Summary Table
Land Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact LR-1	No adverse effects	None
Impact LR-2	No adverse effects	None
Impact LR-3	No adverse effects	None
Impact LR-4	No adverse effects	None
Impact LR-5	No adverse effects	None
Alternative 2: Approximately 202 MW		
Impact LR-1	No adverse effects	None
Impact LR-2	No adverse effects	None
Impact LR-3	No adverse effects	None
Impact LR-4	No adverse effects	None
Impact LR-5	No adverse effects	None
No Action Alternative		
Impact LR-1	No adverse effects	None
Impact LR-2	No adverse effects	None
Impact LR-3	No adverse effects	None
Impact LR-4	No adverse effects	None
Impact LR-5	No adverse effects	None

MW = megawatts.

Impact LR-1 Would the Project result in significant damage to unique geologic/ topographic features?

Alternative 1: Approximately 252 MW

Grading activities, including vegetation clearing, would alter the existing topography and the present natural drainage routes within the limits of grading to provide for the following Project activities: the construction of the wind turbine work sites; construction of new and widening of existing roads; and construction of electrical collection and communications cables, collector substation, transmission lines,

operations and maintenance (O&M) facility, temporary and permanent Met towers, water collection site(s), temporary batch plant, staging and parking areas, high-voltage substation, and switchyard. The disturbance area under Alternative 1 would be confined to the area necessary for construction and safe and reliable operation of Project facilities; development of new access routes would be limited to the greatest extent practicable. Additionally, modifications to topography would not involve mass grading or site leveling such that alterations or damage to geologic or topographic features would result. As such, despite the effects of Project activities to on-site topography, these effects are not expected to be significant or adverse. In addition, Alternative 1 would not physically alter or damage any unique geologic or topographic features during construction. Operation would not involve activities effecting unique geologic features. Decommissioning would not increase disturbance areas and would include restoration to allow for reestablishment of pre-development site characteristics. Thus, the Project would not result in adverse effects and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would include an approximately 20% reduction in the number of turbines and overall construction activity compared to Alternative 1. Alternative 2 would result in less earthwork compared to Alternative 1, and therefore less of an impact. Similarly, it would not physically alter or damage any unique geologic or topographic features during construction, operation, or decommissioning. Therefore, Alternative 2 would not result in adverse effects and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, no construction would occur, and there would be no alteration to unique geologic or topographic features. Thus, no adverse effects were identified, and no mitigation is recommended.

Impact LR-2 Would the Project result in structural instability of Project-related or other existing structures due to accelerated soil erosion?

Alternative 1: Approximately 252 MW

Grading activities associated with areas Alternatives 1 would expose soil to erosion by removing the vegetative cover and compromising the soil structure. Rain and wind may potentially further detach soil particles and transport them to areas beyond the Project Area. A Stormwater Pollution Protection Plan would be prepared and employed during Project construction and decommissioning, and site-specific design measures would be developed and submitted to the CEPA and EPA as part of the Project permitting process.

As stated in Section 2.2.2, Construction, in Chapter 2 (Project Description) of this EIS, wind turbine foundations would be designed based on geotechnical design parameters, wind turbine manufacturer requirements, local design codes, and standards of the wind turbine industry, as determined by the Project's certified professional engineer. The certified geotechnical engineer would perform a geotechnical investigation at each proposed wind turbine site. The geotechnical investigations would

evaluate the suitability of each specific turbine site's geological composition to support the turbine foundation. A similar process would be followed for access roads, Met towers, and other Project components. The geotechnical investigations would be prepared by a certified geotechnical engineer and be submitted to the BIA and the Tribe.

Any proposed turbine site found to be unsuitable would be relocated. Where unsuitable conditions are identified for other Project features, those features would either be realigned or designed with proper consideration of these geotechnical conditions. Because the Project would entail proper engineering of turbine foundations, turbines, roads, and all other Project features by certified professional engineers in full consideration of the site-specific geotechnical investigations, the Project would not result in adverse effects, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would include an approximately 20% reduction in the number of turbines and overall construction activity compared to Alternative 1. Erosion impacts associated with Alternative 2 would be similar to those associated with Alternative 1. A SWPPP would be prepared and employed during Project construction, and site-specific design measures would be developed and submitted to the CEPA and EPA as part of the Project permitting process, ensuring that Alternative 2 would not result in adverse effects from erosion. No mitigation is recommended.

No Action Alternative

Soil conditions on the site, including the potential for erosion, would remain the same under the No Action Alternative as they are under existing conditions. Thus, no adverse effects were identified, and no mitigation is recommended.

Impact LR-3 Would the Project be located on a geologic unit that is unstable?

Alternative 1: Approximately 252 MW

As discussed in Section 2.2.2, the construction methods proposed for Alternative 1 would require grading and soil compacting. Some of these activities would occur in areas of steep slopes greater than 25%, which may experience weakness and instability during grading. The potential for landslides, spreading, liquefaction, collapse, instability, or subsidence is low, however, because the underlying tonalite is a stable geologic unit. Additionally, detailed geotechnical studies specific to the turbine locations would be performed prior to construction to determine existing geologic and soils characteristics of the turbine sites to aid in the appropriate foundation and facilities design. These studies would identify geotechnical conditions to aid in turbine micro-siting and foundation design and to ensure that the Project would not experience hazards associated with landslides, lateral spreading, subsidence, liquefaction, or collapse.

As stated in Section 2.2.2 of this EIS, wind turbine foundation design would be performed based on geotechnical design parameters, wind turbine manufacturer requirements, and standards of the wind turbine

industry, as determined by the Project's certified professional engineer. The geotechnical investigations would evaluate the suitability of each specific turbine site's geological composition to support the turbine foundation and inform this design process. A similar process would be followed for access roads, Met towers, and other Project components. The geotechnical investigations would be prepared by a certified geotechnical engineer and be submitted to the BIA and the Tribe, or the County for those Boulder Brush Facilities within the County's jurisdiction. If a proposed turbine site is found to be unsuitable, the respective site would be relocated within the turbine corridor. Where unsuitable conditions are identified for other Project features, the respective features would either be realigned or designed with proper consideration of these geotechnical conditions. Because the Project would entail proper engineering of turbine foundations, O&M building foundations, substation foundations, turbines, roads, and all other Project features by certified professional engineers in full consideration of the site-specific geotechnical investigations, the Project would not result in adverse effects, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 impacts would be similar to those associated with Alternative 1, although with the decrease in number of turbines, less grading, potential blasting, and soil compacting would occur. Alternative 2 would be designed by certified engineers in full consideration of the site-specific geotechnical investigations to aid in the appropriate design of foundations and facilities, and to avoid any impacts associated with the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse. Proper design and compliance with the required setbacks will ensure that Alternative 2 would not result in adverse effects, and no mitigation is recommended.

No Action Alternative

Geological and soil conditions on the site, including the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse, would remain the same under the No Action Alternative as they are under existing conditions. Thus, the No Action Alternative will result in no adverse effects.

Impact LR-4 ***Would damage to Project components due to seismic events (earthquakes), including fault rupture, and seismically induced ground shaking that results in landslides, liquefaction, settlement, lateral spreading, and/or surface cracking expose people or structures to adverse effects?***

Alternative 1: Approximately 252 MW

The closest fault to the Project Area that has demonstrated Holocene movement is the Elsinore Fault zone. The closest fault segment in this zone is the Coyote Mountain segment, located approximately 19 miles from the Project Site. Since no evidence of Holocene faulting has been identified near the Project Area, the little potential for damage due to fault rupture.

Liquefaction potential would not be a concern and would not have a significant adverse impact at this site based on the lack of saturated, unconsolidated, well-sorted silt or sand. Similarly, differential settlement, which is a type of ground failure that results from the compaction of unconsolidated sediments due to seismic shaking, is not likely to occur, based on a lack of unconsolidated sediments beneath or immediately adjacent to the Project Area (Dames & Moore 1992). As discussed in Section 2.2.2 of this EIS, Project foundations and components would be designed considering all applicable local, state, federal, and industry engineering standards, as determined by site-specific geotechnical investigations at each turbine site. Additionally, if high levels of ground shaking are experienced on the Reservation or a major earthquake (magnitude 6.0 and above) occurs along the Elsinore Fault, Terra-Gen would hire a licensed professional geologist, geotechnical engineer, and/or structural engineer to perform facilities inspections following the event. Careful examination would be conducted of all Project components. Any required repair or needed improvements would be implemented as soon as feasible to ensure that the integrity of Project components has not been compromised. No adverse effects would occur and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would be subject to the same seismic conditions as Alternative 1 and would result in similar impacts. Therefore, the Project would not result in adverse effects from seismic events and no mitigation is recommended.

No Action Alternative

The No Action Alternative would not entail construction of any structures that would be subject to seismic conditions. Therefore, no adverse effects would occur. No mitigation is recommended.

Impact LR-5 Would the Project result in damage to paleontological resources?

Alternative 1: Approximately 252 MW

Because the Project Area is in the Peninsular Range Batholith, a geologic formation with a zero - significance sensitivity rating for paleontological resources, the likelihood for any ground-disturbing activities in the area to encounter paleontological resources is extremely low. As such, Alternative 1 facilities would not damage paleontological resources and no adverse effects would occur, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Impacts would be identical to Alternative 1 because the proposed facilities would be located in the same geologic formation. Therefore, no adverse effects would occur and no mitigation is recommended.

No Action Alternative

The No Action Alternative would not disturb any earth and would therefore result in no adverse effects on paleontological resources.

4.1.3 Mitigation Measures

Because none of the Project alternatives would result in adverse effects on land resources, no mitigation is recommended.

4.1.4 Conclusions

The Project alternatives would result in no adverse effects on land resources, and no mitigation is recommended.

4.2 WATER RESOURCES

This section addresses potential direct and indirect effects to water resources resulting from the construction and O&M of the Project and summarizes the information presented in the Groundwater Resource Evaluation, provided as Appendix F to this EIS. Because Alternative 2 would include only 48 turbines, compared to 60 for the Project, and would therefore require commensurately less water use, direct and indirect effects to water resources would be proportionally smaller than those identified for the Project.

4.2.1 Impact Indicators

For purposes of this environmental review, the Project would have an adverse effect on water resources if it would:

- Violate any water quality standards.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would results in flooding on- or off-site.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of a failure of a levee or dam.
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

4.2.2 Effects

Summary Table
Water Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact WAT-1	No adverse effects	None
Impact WAT-2	No adverse effects	None
Impact WAT-3	No adverse effects	None
Impact WAT-4	No adverse effects	None
Impact WAT-5	No adverse effects	None
Impact WAT-6	No adverse effects	None
Impact WAT-7	No adverse effects	None
Impact WAT-8	No adverse effects	None
Impact WAT-9	No adverse effects	None
Alternative 2: Approximately 202 MW		
Impact WAT-1	No adverse effects	None
Impact WAT-2	No adverse effects	None
Impact WAT-3	No adverse effects	None
Impact WAT-4	No adverse effects	None
Impact WAT-5	No adverse effects	None
Impact WAT-6	No adverse effects	None
Impact WAT-7	No adverse effects	None
Impact WAT-8	No adverse effects	None
Impact WAT-9	No adverse effects	None
No Action Alternative		
Impact WAT-1	No adverse effects	None
Impact WAT-2	No adverse effects	None
Impact WAT-3	No adverse effects	None
Impact WAT-4	No adverse effects	None
Impact WAT-5	No adverse effects	None
Impact WAT-6	No adverse effects	None
Impact WAT-7	No adverse effects	None
Impact WAT-8	No adverse effects	None
Impact WAT-9	No adverse effects	None

Impact WAT-1 Would the Project violate any water quality standards?

Alternative 1: Approximately 252 MW

Construction and decommissioning activities under Alternative 1 are expected to necessitate excavation to a depth of no more than 25 feet, and only in limited locations. Weathering of freshly exposed soils from trenching, foundation excavation, or road construction could release various

chemicals through oxidation and leaching processes. These activities could then affect the surface water and groundwater quality of downgradient locations. Degradation of groundwater resulting from excavation is unlikely to occur, primarily because encountering groundwater in the Project Area is not expected at the depths of excavation necessary for construction (Project Site groundwater levels observed at 21.2 to 76.3 feet below ground surface) (Appendix F). Excavation activities, without proper BMP controls in place, could contaminate groundwater through erosion, sedimentation, and accidental material spills. Construction and decommissioning must comply with the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Permit for the Project, and the SWPPP prepared for the Project, as well as other applicable water quality and waste discharge regulations. The implementation of Campo Wind Facilities and Boulder Brush Facilities specific SWPPP(s), as explained in Section 2.2.2, Construction (see Chapter 2, Project Description, of this EIS), would reduce the potential for water quality impacts related to erosion and sedimentation and other construction-related pollutants. BMPs identified in the SWPPP would conform to EPA requirements. If dewatering is required on the site, the dewatering would occur in compliance with all EPA requirements, and potential contaminants would be kept at least 200 feet from the dewatering activities. Conformance with the SWPPP and all applicable regulations pertaining to water quality would avoid adverse effects during construction and decommissioning.

The Project does not entail any major sources of pollutant discharges. During operation, the O&M facility sanitary system would collect wastewater from sanitary facilities such as sinks and toilets. This waste stream would be sent to an on-site sanitary waste septic system. Operation must comply with the Clean Water Act and the NPDES Permit program, as well as other applicable water quality and waste discharge regulations. Given this mandatory regulatory compliance, adverse operational effects are not anticipated.

Alternative 2: Approximately 202 MW

Alternative 2 would include an approximately 20% reduction in the number of turbines and overall construction activity compared to Alternative 1. Alternative 2 would result in earthwork excavations to the same depth as Alternative 1, and therefore less of an impact. Similarly, conformance with the SWPPP and all applicable regulations pertaining to water quality would avoid adverse effects during construction and decommissioning of Alternative 2. During operation, the O&M facility sanitary system would operate as described for Alternative 1 and the waste stream would be sent to an on-site sanitary waste septic system. Operation must comply with the Clean Water Act and the NPDES Permit program, as well as other applicable water quality and waste discharge regulations. Given this mandatory regulatory compliance, adverse operational effects under NEPA are not anticipated.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-2 Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge?

Alternative 1: Approximately 252 MW

Under Alternative 1, approximately 123 acre-feet of water would be required over the 14-month construction period of the Campo Wind Facilities and an additional 50 acre-feet (AF) of water for the Boulder Brush Facilities. Including the existing water demand in the Project Area from the Golden Acre Casino of 23.4 AF, the total water demand in the Project Area during construction would be approximately 196 AF. A soil moisture balance analysis was performed considering 59 years of historical precipitation record, which included 23 years of no rainfall and 23 years with more than 196 AF of rainfall recharge (see Appendix F). In these years, construction would result in no net loss of groundwater in storage in the Project Area. In the remaining 13 years, the depletion in groundwater storage from the 196 AF of water demand in the study area ranged from 10 AF to 168 AF, or approximately 0.3% to 5.6% of the total groundwater in storage in the Project Area. Given the results of the soil moisture balance, even in years with 0 AF of rainfall recharge in the study area, the total depletion in groundwater in storage is less than 10%, with the loss of groundwater in storage in these years being recovered in subsequent wet years. As a result, the impact of construction and operation is within the limits set by the County of San Diego Standards of Significance, which is total groundwater in storage remaining above 50% groundwater in storage. Thus, no adverse effect to groundwater storage would occur as a result of the Project.

Groundwater drawdown at off-site wells is also within the limits set by the County of San Diego Standards of Significance, which indicate that after a 5-year projection of drawdown, water levels in off-site wells must not be decreased more than 20 feet. As described in Appendix F, Groundwater Resource Evaluation, drawdown at the nearest off-site well was estimated after 1 year of Project pumping for construction (173 AF of water used), and 5 years after the start of Project construction with pumping for Project construction and O&M (0.25 AF per year for O&M). The estimated drawdown at the nearest off-site well after 1 year of pumping for construction ranged from 13 feet to 31 feet. The total estimated drawdown after 5 years with 1 year of construction pumping and 4 years of O&M pumping ranged from 9 feet to 19 feet. Additionally, following the construction of the East County (ECO) Substation Project that used 40 AF from the Reservation production wells, including some Reservation water use, groundwater levels recovered to pre-construction levels in one wet year following 4 years of drought. Therefore, even at the greater water demands analyzed for this Project, long-term depletion of groundwater storage due to Project construction and O&M is not anticipated.

Due to the limited amount of compaction and grading during construction in comparison with the size of the area recharging groundwater, no adverse effects on groundwater recharge are anticipated from these activities under Alternative 1. During operations for Alternative 1, the water demand would be approximately 0.25 AF per year and would be used solely for the sanitary functions associated with the O&M facility and any landscaping components.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced water demand because fewer turbines are proposed and because of the overall reduction in construction activities under this alternative. Therefore, under Alternative 2 long-term depletion of groundwater storage due to Project construction and O&M is not anticipated, and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-3 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

Alternative 1: Approximately 252 MW

As stated in Section 3.2, Water Resources, a number of gullies, swales, and dry washes transect the Reservation. Construction and decommissioning of the Project would expose erodible soils on steep slopes due to ground surface disturbance, heavy equipment traffic, and alteration of surface runoff patterns. Additionally, weathering of freshly exposed soils from trenching, foundation excavation, or access road construction could release various chemicals through oxidation and leaching processes. These activities could then affect the surface water and groundwater quality of down-gradient locations. As discussed under Impact WAT-1, a SWPPP would be prepared and implemented as part of Project construction. The Project would incorporate additional measures to manage runoff, including locating roads away from drainage bottoms, wetlands, and erodible soils to the greatest extent practicable; constructing drainage components to capture and direct stormwater flow across the site as part of site preparation; graveling of areas of the Collector substation not covered with concrete to minimize surface runoff and erosion and for fire protection; minimal clearing and grading of turbine work sites; and installing silt fencing at the limits of disturbance to control runoff and erosion.

Coordination with the U.S. Army Corps of Engineers as part of the Clean Water Act 401/404 permit process would ensure that impacts to any jurisdictional wetlands and ephemeral streams are avoided to the extent practicable. Wetlands impacts and permitting processes are discussed in Section 4.5, Biological Resources, of this EIS.

During the operation of the Project, no grading, trenching, or excavation activities are expected. As such, the drainage pattern of the Project Area would not be altered. In addition, no stream or river would be altered that would result in substantial erosion effects, directly or indirectly. No adverse operational effects are anticipated. There is no recommended mitigation.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced ground disturbance and changes in impervious surfaces because fewer turbines are proposed. Alternative 2 would be subject to the same BMPS, SWPP and permitting processes described for Alternative 1. Therefore, under Alternative 2 the drainage pattern would not be altered due to Project construction or operation and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-4 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?

Alternative 1: Approximately 252 MW

As described in Impact WAT-3, construction and decommissioning of the Project would expose severely erodible soils on steep slopes and activities that could affect the surface water and groundwater quality of downgradient locations, if not properly controlled. On-site stormwater runoff could alter existing drainage patterns if adequate measures are not taken to channel and direct runoff. However, controls will be installed as described in Impact WAT-3 and Appendix F. Additionally, no turbines would be installed within an existing water feature, and channel crossings on Project roads would be constructed to convey the 100-year storm runoff flows.

Coordination with the U.S. Army Corps of Engineers as part of the Clean Water Act 401/404 permitting process would ensure that streams are not altered during the installation of stream crossings. As stated under Impact WAT-3, operation of the Project would not involve activities that would alter the drainage pattern of the area. In addition, no stream or river would be altered in a manner that would result in substantial runoff or flooding.

No adverse effects are anticipated for Alternative 1 and mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced ground disturbance and changes in impervious surfaces because fewer turbines are proposed. Alternative 2 would be subject to the same BMPS, SWPP and permitting processes described for Alternative 1. Therefore, under Alternative 2 the drainage pattern would not be altered due to Project construction or operation and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-5 Would the Project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Alternative 1: Approximately 252 MW

As described under Impact WAT-3, the construction and decommissioning of the Project could result in on-site stormwater runoff, potentially altering existing drainage patterns if adequate measures are not implemented to channel and direct runoff. A SWPPP would be prepared and employed during Project construction, and site-specific design measures would be developed and submitted to the CEPA and EPA as part of the Project permitting process. Compliance with the required SWPPP prepared for the Project would ensure that no adverse impacts related to exceeding existing capacities of the stormwater drainage system and polluted stormwater would occur.

During the operation of the Project, no grading, trenching, or excavation activities are expected. The O&M facility sanitary system would collect wastewater from sanitary facilities such as sinks and toilets. This waste stream would be sent to an on-site sanitary waste underground septic system, which would not increase runoff from the Project. The operation of the Project would be in compliance with the Clean Water Act, the NPDES Permit program, and the SWPPP prepared for the Project, as well as other applicable water quality and stormwater regulations. Compliance with applicable regulations would prevent polluted runoff and exceeding existing capacities of the stormwater drainage system.

No adverse effects are anticipated for Alternative 1 and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced ground disturbance and changes in impervious surfaces because fewer turbines are proposed. Alternative 2 would be subject to the same BMPS, SWPP and permitting processes described for Alternative 1. Therefore, under Alternative 2 no adverse effects to runoff and stormwater system capacity would result from Project construction or operation and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-6 Would the Project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Alternative 1: Approximately 252 MW

The Project would not include the construction or operation of any housing or residential uses. As such, no adverse effects would occur for Alternative 1 related to placing housing within a flood hazard area.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced footprint within the same location as Alternative 1 and would also not construct or operate any housing. Therefore, Alternative 2 would not result in adverse effects related to placing housing within a flood hazard area.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-7 Would the Project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Alternative 1: Approximately 252 MW

The Project Site is not located within a 100-year flood hazard area. As such, the construction and operation of the Project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows. Drainage channel crossings on Project roads, however, would be constructed to convey the 100-year storm runoff flows. No adverse effects would occur for Alternative 1 related to impeding or redirecting flood flows within a 100-year flood hazard area.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced footprint within the same location as Alternative 1, which is not within a 100-year flood hazard area. Therefore, Alternative 2 would not result in adverse effects related to structures within a flood hazard area.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-8 Would the Project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

The Project Area is not located in an area at risk for dam inundation, as no dam exists within the Project Area and the site is not downstream of any dam. As such, the construction and operation of the Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a dam. In addition, the Project Site is not located near any levees. No adverse effects would occur for Alternative 1 and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced footprint within the same location as Alternative 1, which is not in an area at risk of dam inundation or downstream of any dam or levee. Therefore, Alternative 2 would not result in adverse effects related to flooding, including flooding from failure of a dam or levee.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

Impact WAT-9 Would the Project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?

Seiches are seismically induced tidal phenomena that occur in enclosed bodies of water. Two bodies of water—Morena Reservoir and Barrett Lake—are located approximately 8 miles and 15 miles west of the Project Area, respectively. The distance and difference in topography between the Project Area and these bodies of water mean there is no risk of a seiche resulting in damage to the Project. Therefore, no adverse impacts would result associated with inundation due to seiche.

Tsunamis are seismically induced tidal phenomena that affect low-lying coastal areas. The Project Site is located approximately 45 miles east of the Pacific Ocean at an elevation of approximately 3,500 to 4,600 feet above mean sea level; therefore, it is not located within a designated tsunami hazard area and is not susceptible to inundation by tsunami.

The Project Area is mountainous and contains major hills and steep slopes. However, the Project Area is not in a designated landslide/mudslide area. Thus, the Project Site is not at elevated risk for mudflows. Therefore, no adverse effects would result associated with inundation due to mudflow for Alternative.

Alternative 2: Approximately 202 MW

Alternative 2 would have a reduced footprint within the same location as Alternative 1, which is not in an area identified as at risk from inundation by sieche, tsunami, or mudflow. Therefore, Alternative 2 would not result in adverse effects and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

4.2.3 Mitigation Measures

No adverse effects would occur from construction or operation of the Project and no mitigation is recommended.

4.2.4 Conclusions

The Project would not result in adverse effects on water resources. The potential for adverse effects on water resources in general is attributable to construction activities during which applicable regulations and the implementation of BMPs as described in a SWPPP would be undertaken during development. The Project alternatives' effects on water resources would not result in adverse effects.

4.3 AIR QUALITY

4.3.1 Impact Indicators

A quantitative evaluation of the Project's potential construction and operational emissions was conducted and evaluated against the federal *de minimis* emissions thresholds. A project whose emissions do not exceed the *de minimis* thresholds for carbon monoxide (CO), oxides of nitrogen (NO_x), or volatile organic compounds (VOCs) (100 tons per year) would not be considered to have an adverse effect related to ozone (O_3). Detailed analysis and modeling results are provided in the Air Quality and GHG Technical Report provided as Appendix G to this EIS.

4.3.2 Effects

Summary Table
Air Quality Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact AQ-1	No adverse effects	None
Alternative 2: Approximately 202 MW		
Impact AQ-1	No adverse effects	None
No Action Alternative		
Impact AQ-1	No adverse effects	None

MW = megawatts.

Impact AQ-1 Would the Project exceed federal de miminis thresholds for the San Diego Air Basin?

Alternative 1: Approximately 252 MW

Construction Impacts

Construction of the Project would result in the temporary addition of VOC, NO_x, and CO emissions to the local airshed from both on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application, and internal haul trucks) and off-site sources (e.g., vendor trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity and the specific type of operation. VOC, NO_x, and CO emissions from Project construction were quantified using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The annual construction emissions of VOC, NO_x, and CO as compared to the federal *de minimis* thresholds are shown in Table 4.3-2 (provided in Appendix D to this EIS).

As shown in Table 4.3-2 (Appendix D), the Project would not exceed federal *de minimis* emissions thresholds for VOC, NO_x, and CO during construction; therefore, further analysis is not required with respect to VOC, NO_x, and CO emissions. Even including emissions from activities on private lands outside of the BIA's jurisdiction and control, which is not required under EPA Conformity Determination Guidance, the Project would be in compliance with general conformity requirements and would not conflict with local air quality attainment or maintenance plans to achieve or maintain federal ambient air quality standards. Project construction would thus not have an adverse effect on air quality, and no mitigation is recommended.

Operational Impacts

Operation of the Project would generate VOC, NO_x, and CO emissions from mobile sources, including vehicle trips from workers; and stationary sources, including two emergency generators. Criteria air pollutant emissions associated with long-term operations were quantified using CalEEMod.

CalEEMod Version 2016.3.2 uses vehicle emission factors from EMFAC2014, which take into account various statewide and federal mobile source strategies and regulations. The Project's annual operational emissions are summarized in Table 4.3-3 (see Appendix D).

As shown in Table 4.3-3 (Appendix D), the Project's annual VOC, NO_x, and CO emissions from operational emissions are less than the federal *de minimis* emissions thresholds; therefore, further analysis is not required with respect to VOC, NO_x, and CO emissions. The Project would be in compliance with general conformity requirements and would not conflict with local air quality attainment or maintenance plans to achieve or maintain federal ambient air quality standards. The Project operations would thus not have an adverse effect on air quality. No mitigation is recommended.

Alternative 2: Approximately 202 MW

Alternative 2 would include an overall reduction in turbines (by approximately 20%) compared to Alternative 1 and therefore would have reduced construction and operation effects. No adverse effects on air quality from construction or operation would result and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects would occur.

4.3.3 Mitigation Measures

Because the Project would not result in adverse effects on air quality, no mitigation is recommended.

4.3.4 Conclusions

The Project's potential VOC, NO_x, and CO emissions from both construction and operation would be less than the federal *de minimis* emissions thresholds for these pollutants, even conservatively including emissions related to activities outside the BIA's control. Therefore, the Project would not have an adverse effect on air quality, and no mitigation is recommended.

4.4 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

This section discusses effects on greenhouse gas (GHG) emissions and climate change that may occur with implementation of the Project alternatives.

4.4.1 Impact Indicators

There is currently no formal guidance or numeric thresholds for evaluating project-generated GHG emissions in NEPA assessments. Estimated Project-generated GHG emissions are included herein for disclosure purposes only. This Project emissions estimation disclosure is expressed as Impact GHG-1 (see Section 4.4.2, Effects).

Additional information is provided in the Air Quality and GHG Technical Report (AQ/GHG Technical Report) included as Appendix G to this EIS.

4.4.2 Effects

Summary Table
Greenhouse Gas Emissions and Climate Change Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact GHG-1	No adverse effects	None
Alternative2: Approximately 202 MW		
Impact GHG-1	No adverse effects	None

Summary Table
Greenhouse Gas Emissions and Climate Change Effects and Mitigation

Impact Number	Effect	Mitigation
No Action Alternative		
Impact GHG-1	No adverse effects	None

Impact GHG-1 Would the Project result in GHG emissions or climate change effects that would be significant under NEPA?

Alternative 1: Approximately 252 MW

Construction-Related GHG Emissions

Annual GHG emissions from the construction phase of the Project were estimated using CalEEMod, Version 2016.3.2. Construction of the Project is anticipated be completed in late 2020, lasting a total of approximately 14 months. The analysis considers both on-site sources of GHG emissions (e.g., off-road equipment traveling on the Project Site) and off-site sources (e.g., vendor trucks and worker vehicles traveling outside the Project Site). Table 4.4-1, Estimated Annual Construction Greenhouse Gas Emissions (provided in Appendix D to this EIS), presents anticipated construction-related GHG emissions in metric tons (MT) for the Project in 2019 and 2020 from both on- and off-site emission sources. As shown in Table 4.4-1, the estimated total GHG emissions during construction would be approximately 2,433 metric tons of carbon dioxide equivalent (MT CO_2e) in 2019 and 3,748 MT CO_2e in 2020, for a total of 6,181 MT CO_2e over the construction period.

As with Project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the Project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. This source of emissions is not considered material due to the large number of emission reductions from the Project, as described below.

Loss of Sequestered Carbon

It is conservatively assumed that all carbon sequestered in vegetation removed as a result of the Project would be returned to the atmosphere; that is, the wood from trees and other removed vegetation would not be reused in a solid or other form that would retain its sequestered carbon.

GHG emissions from the loss of sequestered carbon during clearing, tree removal, and grading are estimated in the construction emissions analysis. CalEEMod calculates GHG emissions resulting from land conversion and uses six general Intergovernmental Panel on Climate Change land use classifications for assigning default carbon content values (in units of MT carbon dioxide (CO_2) per acre).[7] The Project would permanently disturb approximately 800 acres with varying carbon content values. As shown in

[7] The six land use classifications used are forest land (scrub), forest land (trees), cropland, grassland, wetlands, and other.

Table 4.4-2, Vegetation Removal – Estimated Loss of Sequestered Carbon (see Appendix D), the estimated total one-time loss of sequestered carbon from land use conversion for the Project would be 13,575 MT CO_2.

Operational Emissions

CalEEMod was used to estimate potential Project-generated operational GHG emissions from area sources (gas insulated switchgear), energy sources (electricity), mobile sources, solid waste, and water supply and wastewater treatment, as detailed in the AQ/GHG Technical Report in Appendix G. Operational year 2020 was assumed. The estimated operational Project-generated GHG emissions from these sources are shown in Table 4.4-3, Estimated Annual Operational Greenhouse Gas Emissions (see Appendix D).

As shown in Table 4.4-3, estimated annual Project-generated GHG emissions would be approximately 199 MT CO_2e per year as a result of Project operations only. While there are no specific requirements for evaluating GHG emissions, estimated Project-generated operational GHG emissions are included for disclosure.

GHG Emissions Benefits of Operations

The Project's operation would provide a source of renewable energy. Renewable energy capacity has the potential to replace GHG emissions generated by, among other things, burning fossil fuels to generate electricity or for transportation. The Project is expected to produce an estimated 756,000 MWh of electricity per year. It is instructive to look at the electricity profile of the SDG&E to demonstrate the GHG emissions benefit the Project may have in its contribution to Southern California's regional electricity supply. The latest published GHG emissions factor for SDG&E is 0.302 MT CO_2e per MWh (EPIC 2016). SDG&E reported that 43% of its power mix was renewable in 2016. Therefore, the non-renewable GHG emission factor would be 0.530 MT CO_2e per MWh.

The Project, by potentially offsetting non-renewable electricity generating capacity, would therefore provide a potential reduction of 400,547 MT CO_2e per year of the electricity generated by SDG&E with its current mix of energy sources. Annualized construction, loss of carbon sequestration, and operational emissions are calculated to be 857 MT CO_2e per year. Thus, the Project could result in a net reduction in GHG emissions of up to 399,690 MT CO_2e per year and 11,990,700 MT CO_2e over the 38-year Project lifetime. While energy produced by the Project may not directly replace energy produced by SDG&E, it is likely that the energy produced by the Project would replace a fossil-fuel energy source currently used by a California electrical utility or other offtaker (e.g., a Community Choice Aggregator) because California load serving entities must provide only carbon-free energy by 2045.

Alternative 2: Approximately 202 MW

Alternative 2 would include an overall reduction in turbines (of approximate 20%) and therefore would have reduced construction effects and reduced benefits from operation compared to Alternative 1.

No Action Alternative

Under the No Action Alternative, the Project would not be developed, and no effects or benefits would occur.

4.4.3 Mitigation Measures

The Project would not result in adverse effects on GHG emissions or climate change and would likely assist long-term net reduction in GHG emissions for the region. No mitigation is recommended.

4.4.4 Conclusions

While there are no specific requirements under NEPA for evaluating a project's potential GHG emissions, estimated Project-generated GHG emissions are included here for the purposes of disclosure. Furthermore, the Project could result in a net reduction in GHG emissions of 399,690 MT CO_2e per year and 11,990,700 million MT CO_2e over the potential 38-year Project lifetime.

4.5 BIOLOGICAL RESOURCES

This section discusses the effects on existing biological resources that may occur with full implementation of the Project. Information presented in this section is summarized from the Biological Technical Report, provided as Appendix H to this EIS.

4.5.1 Impact Indicators

For purposes of this environmental review, the Project would affect biological resources if it would:

- Have an adverse effect on any riparian habitat or other sensitive natural community regulated or protected under federal law or regulation.
- Have an adverse effect on federally regulated wetlands as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means.
- Have an adverse effect on any sensitive species afforded protection under federal law or regulation.
- Interfere with the movement of any federally protected fish or wildlife species or with established wildlife corridors regulated or protected under federal law or regulation.

4.5.2 Effects

Summary Table
Biological Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact BIO-1	Adverse effects on riparian and wetland vegetation communities that potentially coincide with jurisdictional waters of the United States	MM BIO-1 through MM BIO-4
Impact BIO-2	Adverse effects on waters of the United States	MM BIO-1 and MM-BIO-2

Summary Table
Biological Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Impact BIO-3	Adverse effects on Quino checkerspot butterfly and nesting birds protected by the Migratory Bird Treaty Act	MM BIO-1, MM-BIO-3, and MM-BIO-4
Impact BIO-4	No adverse effects on wildlife movement or corridors	None
Alternative 2: Approximately 202 MW		
Impact BIO-1	Adverse effects on riparian and wetland vegetation communities that potentially coincide with jurisdictional waters of the United States	MM BIO-1 through MM-BIO-4
Impact BIO-2	Adverse effects on waters of the United States	MM BIO-1 and MM-BIO-2
Impact BIO-3	Adverse effects on Quino checkerspot butterfly and nesting birds protected by the Migratory Bird Treaty Act	MM-BIO-1, MM BIO-3, and MM-BIO-4
Impact BIO-4	No adverse effects on wildlife movement or corridors	None
No Action Alternative		
Impact BIO-1	No adverse effects	None
Impact BIO-2	No adverse effects	None
Impact BIO-3	No adverse effects	None
Impact BIO-4	No adverse effects	None

Impact BIO-1 Would the Project have an adverse effect on any riparian habitat or other sensitive natural community regulated or protected under federal law or regulation?

Alternative 1: Approximately 252 MW

Absent mitigation, direct impacts to habitat could potentially occur during construction as a result of direct removal through grading, as well as inadvertent vegetation crushing or grading or intrusion outside the impact footprint. See Table 4.5-1a, provided in Appendix D of this EIS.

In addition, potential indirect habitat impacts could occur during construction and operations as a result of hydrology changes and erosion, polluted soils or runoff, excessive dust, presence of trash, introduction of invasive species, nighttime lighting, and alteration of the natural fire regime. The Project includes standard BMPs to reduce these potential effects, but indirect effects would remain adverse. Due to the placement of the proposed structures spread out through the Project Site and infrequent use of access roads, the Project would not result in habitat fragmentation.

Decommissioning activities associated with Alternative 1 would result in direct and indirect adverse effects to vegetation communities similar in nature, but involving less acreage, to those described above for construction. Direct and indirect adverse effects associated with decommissioning would be temporary because the Project Site would be restored to pre-Project conditions at the completion of decommissioning. Therefore, decommissioning would not have adverse effects on vegetation communities.

Direct and indirect adverse effects associated with construction and operations of Alternative 1 to riparian and wetland vegetation communities that potentially coincide with jurisdictional waters of the United States (e.g., regulated under Section 404 of the Clean Water Act; see Impact BIO-2) would be adverse (Impact BIO-1). Mitigation measures applicable to jurisdictional waters of the United States are discussed below (see Impact BIO-2). In addition, direct and indirect adverse effects on upland, riparian, and wetland vegetation communities supporting federally protected species resulting from Alternative 1 would be adverse (see Impact BIO-3). Recommended mitigation measures applicable to federally protected species are listed in Section 4.5.3, Mitigation Measures, and provided in full in Appendix P to this EIS. With implementation of MM-BIO-1 (General Avoidance and Minimization Measures) through MM-BIO-4, the Project would not result in adverse effects.

Alternative 2: Approximately 202 MW

The impacts from Alternative 2 would be similar to those under Alternative 1, although reduced because fewer turbines would involve a smaller footprint and thus less disturbance.

Direct Impacts to Vegetation Communities. Alternative 2 would result in direct impacts to vegetation communities that coincide with jurisdictional waters of the United States. These effects would not be adverse through implementation of recommended MM-BIO-2 (Jurisdictional Waters and Wetlands Compensation; see Appendix P, Mitigation Measures for the Campo Wind Project). Permanent impacts would be mitigated through an approved mitigation bank and/or in-lieu fee program in order to achieve no net loss of jurisdictional aquatic resources.

The temporary and permanent indirect effects are similar to those described for the Project but would be reduced through the elimination of turbines and associated disturbances within the Reservation. See Table 4.5-1b, provided in Appendix D of this EIS. These impacts would be reduced to less than adverse through implementation of MM-BIO-1.

No Action Alternative

Under the No Action Alternative, no construction of the Project would occur; therefore, there would be no adverse effects on vegetation communities.

Impact BIO-2 Would the Project have an adverse effect on federally regulated wetlands as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means?

Alternative 1: Approximately 252 MW

The Project would result in temporary and permanent jurisdictional impacts as presented in Table 4.5-2 (see Appendix D to this EIS); see Appendix H for figures. Construction of permanent, unpaved roads across ephemeral drainage features would be at grade to allow for water to continue flowing downstream unimpeded. Therefore, they would not adversely affect the overall functions (e.g., volume, velocity, and

historical direction of surface water) or values (e.g., aesthetics, flood control, and water quality) of these features. Direct impacts on jurisdictional waters of the United States during construction and operations would be adverse.

The Project also has potential to result in indirect impacts to jurisdictional waters during construction and operations. Impacts would be the same as those described under Impact BIO-1. Indirect impacts on jurisdictional waters of the United States during construction and operations would be adverse.

Decommissioning activities associated with Alternative 1 would result in direct and indirect adverse effects to jurisdictional waters of the United States similar in nature to those described under Impact BIO-1. Because decommissioning activities would be temporary, and areas temporarily impacted during decommissioning would be restored to pre-Project conditions, implementation of this alternative would not result in adverse impacts on jurisdictional waters. While decommissioning would remove the Project and components from the site, permanent alterations, specifically roads, would remain.

Considering the scope of the Project's permanent impacts on jurisdictional waters, it is anticipated that the Project would qualify for an authorization under the Clean Water Act Section 404 Nationwide Permit 51, Land-Based Renewable Energy Generation facilities (33 CFR 330) and/or Nationwide Permit (NWP) 12, Utility Line Activities. Adverse effects on federally regulated waters and wetlands would be reduced to less than adverse with implementation of NWP 51 and/or NWP 12 permit conditions and MM-BIO-1 and MM-BIO-2. With implementation of MM-BIO-1 and MM-BIO-2, the Project would not result in adverse effects on jurisdictional waters.

Alternative 2: Approximately 202 MW

The impacts from Alternative 2 would be similar to those under Alternative 1, although reduced because fewer turbines would involve a smaller footprint and thus less disturbance. Temporary and permanent jurisdictional impacts as presented in Table 4.5-2 of federally regulated wetland and non-wetland waters of the United States would be a potential adverse effect. These effects would be reduced to less than adverse through implementation of MM-BIO-2. Permanent impacts would be mitigated through an approved mitigation bank and/or in-lieu fee program in order to achieve no net loss of jurisdictional aquatic resources. Temporary and permanent indirect impacts are similar to those described for Alternative 1 but would be reduced through the elimination of the turbines in the southwest portion of the Reservation. Permanent indirect impacts from implementation of this alternative would be minimized through BMPs and would result in no adverse effect. These impacts would be reduced to less than adverse through implementation of MM-BIO-1.

No Action Alternative

Under the No Action Alternative, no construction of the Project would occur and there would be no adverse effects on wetlands or waters of the United States.

Impact BIO-3 Would the Project have an adverse effect on any sensitive species afforded protection under federal law or regulations?

Alternative 1: Approximately 252 MW

Quino Checkerspot Butterfly

Alternative 1 has potential to result in direct and indirect construction and operational effects to Quino checkerspot butterfly (*Euphydryas editha quino*) habitat, as discussed under Impact BIO-1. In addition, Quino checkerspot butterflies fly close to the ground and could be susceptible to collisions with equipment during construction or collisions with vehicles associated with O&M activities.

Alternative 1 would permanently remove 222.1 acres of suitable Quino checkerspot habitat (see Appendix H). Adult Quino checkerspot butterflies typically fly low to the ground and are unlikely to collide with wind turbine blades (USFWS 2011) during operations. The likelihood of Quino checkerspot mortality resulting from collision with rotating turbine blades is considered unlikely and therefore not adverse. Potential direct and indirect effects on the Quino checkerspot butterfly and its habitat resulting from Alternative 1 would be adverse.

The Project would be required to complete a Section 7 consultation process with the U.S. Fish and Wildlife Service (USFWS) and would require the issuance of a Biological Opinion from the USFWS with identified terms and conditions. Adverse effects on the Quino checkerspot and its habitat would be reduced to less than adverse with implementation of recommended MM-BIO-1 and MM-BIO-3 (see Section 4.5.3). The Off-Reservation portion of the Project would not adversely affect any federally listed plants or wildlife, because none are present. An additional set of Quino checkerspot butterfly surveys are being conducted within the Off-Reservation portion of the Project.

Decommissioning activities associated with Alternative 1 would result in temporary direct and indirect adverse effects on Quino checkerspot butterfly similar in nature to those described for Project construction. Because decommissioning would include restoration of the area to pre-Project conditions, it would ultimately not result in adverse effects on Quino checkerspot butterfly.

Golden and Bald Eagles

The infrequent sightings during the eagle point surveys and U.S. Geological Survey biotelemetry data suggests that the Project Site and surrounding area receives little use by golden or bald eagles and is not the core territory of any eagles. Eagle use on site is infrequent and the chance for collisions is low; therefore, there would be no adverse effects on eagles. The Project would be consistent with the USFWS guidance for golden eagles.

Other Migratory Birds

Direct effects on avian species protected under the Migratory Bird Treaty Act resulting from construction and operations of Alternative 1 may include collisions with wind turbines and Met towers, and electrocution from overhead transmission lines (see Impact BIO-1). Absent mitigation, these direct impacts would be adverse. Increased noise and vibration can also affect breeding behaviors. Indirect effects would result from impacts to foraging habitats. Based on the distributed development of the Project and the abundant remaining foraging areas, indirect construction and operational effects on migratory birds would not be adverse.

Decommissioning activities associated with Alternative 1 would result in direct and indirect adverse effects similar in nature to those described for Project construction. Because decommissioning would restore the area to pre-Project conditions, it would ultimately not result in adverse effects.

With implementation of MM-BIO-3 and MM-BIO-4, the Project would not result in adverse effects to migratory birds. Refer to Appendix H for additional information regarding impacts to state and local protected species.

Alternative 2: Approximately 202 MW

The impacts from Alternative 2 would be similar to those under Alternative 1, although reduced (approximately 191.58 acres of potentially occupied Quino checkerspot butterfly habitat) because fewer turbines would involve a smaller footprint and thus less disturbance. Direct and indirect impacts from Alternative 2 would be reduced to less than adverse with implementation of MM-BIO-1 and MM-BIO-4 (Avian-Specific Avoidance, Minimization, and Mitigation Measures).

No Action Alternative

Under the No Action Alternative, no construction of the Project would occur and there would be no adverse effects on vegetation communities.

Impact BIO-4 Would the Project interfere with the movement of any federally protected fish or wildlife species or with established wildlife corridors regulated or protected under federal law or regulation?

Alternative 1: Approximately 252 MW

Implementation of the Project is not expected to result in permanent or temporary direct impacts to habitat connectivity and wildlife corridors. The Project Site does not contain any wildlife corridors; therefore, the limits of grading would not further constrain wildlife movement. Although the Project would involve placement of structures and wind turbines within the landscape, these features are separated, allowing for wildlife to move between them. There is activity throughout the Project Site and additional human activity from operation activities is not expected to impact wildlife movements. The presence of turbines would not

preclude the use of the Pacific Flyway for avian species, nor would it artificially constrain avian species to a modified or "unnatural" movement corridor. No adverse direct impact to wildlife movement or corridors would occur. Temporary and permanent indirect impacts as described under Impact BIO-1 would not result in an adverse effect on wildlife corridors and habitat connectivity.

Decommissioning activities associated with Alternative 1 would result in indirect adverse effects similar in nature to those described above. Indirect adverse effects would be temporary because the site would be restored to pre-Project conditions at the completion of decommissioning. Therefore, decommissioning would be considered beneficial to wildlife corridors.

Alternative 2: Approximately 202 MW

The direct and indirect temporary and permanent effects from Alternative 2 would be similar to those under Alternative 1, although reduced because fewer turbines would involve a smaller footprint and thus less disturbance.

No Action Alternative

Under the No Action Alternative, no construction of the Project would occur and there would be no adverse effects on wildlife movement or corridors.

4.5.3 Mitigation Measures

Implementation of the following recommended mitigation measures would reduce adverse effects from the Project build alternatives to less than adverse:

MM-BIO-1 (General Avoidance and Minimization Measures)

(a) Project Biologist(s)

(b) Environmental Training Program

(c) SWPPP

(d) Fugitive Dust Control Plan

(e) Erosion and Runoff Control

(f) Weed Management

(g) Fire Protection

MM-BIO-2 (Jurisdictional Waters and Wetlands Compensation)

MM-BIO-3 (Implementation of USFWS-Issued Terms and Conditions)

(a) Construction Fencing and Signage

(b) Seasonal Avoidance

MM-BIO-4 (Avian-Specific Avoidance, Minimization, and Mitigation Measures)

(a) Vegetation Clearing Seasonal Avoidance/Nest Clearance Surveys

(b) Construction Seasonal Avoidance/Pre-Construction Surveys.

(c) Avian Monitoring Plan

(d) Removal of Carcasses

(e) APLIC Standards

Full details of these mitigation measures are located in Appendix P.

4.5.4 Conclusions

While impacts have been minimized to the extent feasible, both build alternatives' construction and operations would result in adverse biological resource effects related to riparian and wetland vegetation communities that coincide with jurisdictional waters of the United States (see Impact BIO-1); jurisdictional waters of the United States (see Impact BIO-2); and the federally listed Quino checkerspot butterfly and migratory birds protected by the Migratory Bird Treaty Act (see Impact BIO-3). Implementation of MM-BIO-1 through MM-BIO-4 would reduce these effects to less than adverse. Decommissioning would result in similar impacts to those described for Alternative 1 construction and would entail the same mitigation but would ultimately not result in adverse effects because habitats would be restored as required under the terms of the Campo Lease.

4.6 CULTURAL RESOURCES

This section discusses the effects on existing cultural resources that may occur with full implementation of the Project. Information presented in this section is summarized from the Cultural Resources Report, provided as Appendix I to this EIS.

4.6.1 Impact Indicators

For purposes of this environmental review, the Project would adversely affect cultural resources if it would:

1. Cause damage or destruction to existing buildings, sites, districts, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP).
2. Cause damage to inadvertent discoveries of cultural resources or human remains through the course of the Project (including construction, operation, maintenance, and decommissioning).

4.6.2 Effects

Summary Table
Cultural Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact CUL-1	No adverse effects on existing cultural resources, including buildings, sites, districts, structures, or objects listed in or eligible for listing in the NRHP	None
Impact CUL-2	Potential adverse effects on cultural resources or human remains inadvertently discovered during Project implementation	MM-CUL-1 to MM-CUL-3
Alternative 2: Approximately 202 MW		
Impact CUL-1	No adverse effects on existing cultural resources, including buildings, sites, districts, structures, or objects listed in or eligible for listing in the NRHP	None
Impact CUL-2	Potential adverse effects on cultural resources or human remains inadvertently discovered during Project implementation	MM-CUL-1 to MM-CUL-3
No Action Alternative		
Impact CUL-1	No adverse effects	None
Impact CUL-2	No adverse effects	None

MW = megawatts; NRMP = National Register of Historic Places; MM = Mitigation Measure.

Impact CUL-1 Would the Project result in adverse effects to cultural resources, including buildings, sites, districts, structures, or objects listed in or eligible for listing in the NRHP?

Alternative 1: Approximately 252 MW

Within or intersecting the area of direct impacts (ADI) are 41 archaeological sites, 19 isolates, and 4 built environment resources. Isolated finds are not considered historic properties under Section 106; therefore, no adverse effect is associated with isolated finds.

All 41 archaeological sites within or intersecting the ADI have been evaluated for significance and eligibility for listing in the NRHP and all but two sites are recommended as not significant and not eligible for listing in the NRHP under any significance criteria. As such, the 39 ineligible archaeological sites in or intersecting the ADI are not considered historic properties under Section 106 and the Project would have no adverse effect on these ineligible archaeological sites.

Archaeological sites CA-SDI-7151/7162 and CA-SDI-7156 were evaluated by Westec (1983) and BFSA (1998) under California Environmental Quality Act and County guidelines. Both sites were recommended eligible for listing in the California Register of Historical Resources due to their data potential. As these sites are significant for their data potential, they are also eligible for listing in the NRHP under Criterion D for the same reasons. The BFSA (1998) study delineated significant deposits at each site as the contributing elements to the significance of each site. CA-SDI-7156 will be avoided entirely. At CA-SDI-7151/7162, the significance-conveying site deposits are located outside the ADI for the Project and will

be preserved. The portions of the site that are in the Project ADI do not contain subsurface deposits or features that convey the significance of the site. Additional excavation efforts were performed at the site due to the identification of human remains; no human remains were identified in the ADI. Therefore, the Project would have no adverse effect on the historic property CA-SDI-7156, and no adverse effect on the historic property CA-SDI-7151/7162.

No indirect adverse effects on historic properties have been identified in this analysis.

Alternative 2: Approximately 202 MW

Alternative 2 would result in fewer turbines and less ground disturbance than Alternative 1. Similar to the Alternative 1 site, the Alternative 2 site would not physically alter or damage any historic properties. Therefore, Alternative 2 would not result in adverse effects, and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, no development of the Project would occur and there would be no alteration to cultural resources. Thus, no direct or indirect impacts were identified. No mitigation is recommended.

Impact CUL-2 Would the Project result in adverse effects to inadvertent discoveries of cultural resources, including buildings, sites, districts, structures, or objects listed in or eligible for listing in the NRHP?

Alternative 1: Approximately 252 MW

Project-related ground disturbance, as described above, has the potential to uncover previously unknown archaeological sites. Archaeological investigations for the Project indicate that geologic strata with the potential to contain archaeological material are relatively shallow with near-surface bedrock exposures. For this reason, the likelihood for discovering significant archaeological deposits is low. However, there remains the chance that Project construction could have an adverse effect on significant archaeological deposits or human remains. Operation would not involve excavation activities and decommissioning would involve excavations in areas previously excavated for construction.

To ensure detection and proper treatment of inadvertent discoveries, a Monitoring and Treatment Plan (MM-CUL-1) shall be prepared prior to the start of construction that dictates the procedures for archaeological and Native American monitoring (MM-CUL-2) that will be recommended for all primary ground disturbance and prolonged construction activities near significant avoided historic properties or identified Native American human remains. The Monitoring and Treatment Plan will also detail the procedures for implementing significance evaluation and data recovery mitigation for inadvertent discoveries that cannot be avoided during construction, including treatment of Native American human remains. No indirect adverse effects on inadvertent discoveries are anticipated.

Alternative 2: Approximately 202 MW

Alternative 2 would result in fewer turbines and less ground disturbance than Alternative 1. Similar to the Alternative 1 site, the Alternative 2 site would not physically alter or damage any known historic properties. However, inadvertent discoveries are still possible during construction-related ground-disturbing activities. MM-CUL-1 through MM-CUL-3 would be sufficient to resolve adverse effects on inadvertent discoveries.

No Action Alternative

Under the No Action Alternative, no Project develpment would occur and there would be no alteration to cultural resources. No direct or indirect impacts were identified and no mitigation is recommended.

4.6.3 Mitigation Measures

Implementation of the mitigation measures presented below would mitigate adverse effects on historic properties under Section 106:

MM-CUL-1 (Monitoring and Treatment Plan)

MM-CUL-2 (Archaeological and Native American Monitoring)

MM-CUL-3 (Significance Evaluation and Data Recovery)

Full details of these mitigation measures are located in Appendix P.

4.6.4 Conclusions

Implementation of MM-CUL-1 through MM-CUL-3 would reduce potential effects on cultural resources to less than adverse. No cultural resources have been identified as significant under Section 106 Criteria A–C; therefore, none of the identified resources would be affected in such a way that the provided mitigation would be insufficient to resolve Project-related effects. Thus, the Project would not result in adverse effects.

4.7 SOCIOECONOMIC CONDITIONS

This section discusses effects on existing socioeconomic conditions, including employment, income, environmental justice, public services, and infrastructure, that may occur with implementation of the Project alternatives.

Direct effects would be those caused by the action including impacts to employment and local economic conditions. Indirect effects, may relate to socioeconomic conditions including growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rates (40 CFR 1508.8). Additionally, the NEPA regulations state: "[e]ffects include … cultural, economic, social, or health, whether direct, indirect, or cumulative [and] … may also include those resulting from

actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect would be beneficial" (40 CFR 1508.8).

Additionally, consistent with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994), the environmental justice analysis herein identifies and addresses any disproportionately high and adverse human health or environmental effects on minority and low-income populations and Indian tribes. The Council on Environmental Quality (1997) has issued guidance to federal agencies on the definition of disproportionately high and adverse effects as used in Executive Order 12898.

4.7.1 Impact Indicators

The Project would adversely affect socioeconomic conditions with implementation of the Project if found to:

- Result in a change in employment or income that would alter existing economic trends or provide a major new source of income for the affected area.
- Result in changes in housing demand, supply, or property values that would adversely affect housing availability (e.g., through demolition or acquisition) or have a substantial or widespread effect on the price of housing units in the affected area.
- Result in effects on public services or infrastructure/utilities that would exceed available services or supply or affect availability in the local areas.

For the environmental justice analysis, implementation of the Project would adversely affect socioeconomic conditions if found to result in disproportionately high and adverse effects on minority and/or low-income populations within the Project setting.

4.7.2 Effects

Summary Table
Socioeconomic Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact SOCIO-1	No adverse effects	None
Impact SOCIO-2	No adverse effects	None
Impact SOCIO-3	No adverse effects	None
Impact SOCIO-4	Adverse environmental justice effects due to high minority and low-income populations on Reservation disproportionately affected by adverse noise and visual effects	MM-NOI-1 and MM-VIS-1 through MM-VIS-7 (remains unavoidable adverse effect on Reservation)
Alternative 2: Approximately 202 MW		
Impact SOCIO-1	No adverse effects	None
Impact SOCIO-2	No adverse effects	None
Impact SOCIO-3	No adverse effects	None

Summary Table
Socioeconomic Effects and Mitigation

Impact Number	Effect	Mitigation
Impact SOCIO-4	Adverse environmental justice effects due to high minority and low-income populations on Reservation disproportionately affected by adverse noise and visual effects	MM-NOI-1 and MM-VIS-1 through MM-VIS-7 (remains unavoidable adverse effect on Reservation)
No Action Alternative		
Impact SOCIO-1	No adverse effects	None
Impact SOCIO-2	No adverse effects	None
Impact SOCIO-3	No adverse effects	None
Impact SOCIO-4	No adverse effects	None

Impact SOCIO-1 Would the Project result in a change in employment or income that would alter existing economic trends or provide a major new source of income for the affected area?

Alternative 1: Approximately 252 MW

Under Alternative 1, construction would occur over a 14-month period and would require a daily maximum of 501 workers and laborers of various skill levels, including Tribal members and other local residents. Decommissioning would require a shorter time frame and reduced labor force relative to construction. Pursuant to the Campo Tribal Employment Rights Ordinance, Tribal members would be preferentially hired. In particular, it is anticipated that Tribal members would be hired to provide monitoring and accompaniment services where Tribal cultural knowledge is required for such services.

Under Alternative 1, Project operation would require approximately 12 employees. As per the Tribal Employment Rights Ordinance, qualified members of the Tribe would be preferentially employed during construction and operation; this would help reduce the high unemployment rate among Tribal members on the Reservation. Additionally, members of the surrounding community would benefit from the opportunity for employment. While the construction and decommissioning work would be temporary, operational employment would be long term and the Project would represent a consistent source of revenue for the Tribe via lease payments.

It is expected that the Tribe would use a part of the new leasing income for housing, healthcare, and other development projects through the Tribal general fund. As such, Alternative 1 would also indirectly generate additional employment opportunities through the domino effect of increased per capita income both On- and Off-Reservation. Thus, Alternative 1 would alter existing economic trends and provide a new source of income and revenue. Alternative 1 would not have adverse employment or economic effects; rather, it would have a beneficial effect on the Tribe and socioeconomic conditions on the Reservation.

Alternative 2: Approximately 202 MW

Similar to Alternative 1, construction under Alternative 2 would require a daily maximum of 501 construction workers over the course of 12 to 14 months and a smaller number for decommissioning. Likewise, Project operation under Alternative 2 would require 10 to 12 operational staff. Like Alternative 1, Alternative 2 would supply employment and revenue opportunities. As under Alternative 1, Alternative 2 would provide a new source of income and would be economically beneficial for the Tribe and provide potential employment opportunities for the surrounding community. Therefore, Alternative 2 would not have adverse employment or economic effects; rather, it would have a beneficial effect on the Tribe and socioeconomic conditions on the Reservation.

No Action Alternative

Under the No Action Alternative, no economic or employment beneficial impacts would occur associated with implementation of the lease and the Tribe would have to continue to seek other sufficient development opportunities to provide such benefits.

Impact SOCIO-2 Would the Project result in changes in housing demand, supply, or property values that would adversely affect housing availability (e.g., through demolition or acquisition) or have a substantial or widespread effect on the price of housing units in the affected area?

Alternative 1: Approximately 252 MW

Project construction and operation under Alternative 1 would not require the demolition or displacement of any residential homes; thus, the Project would not result in a decrease in housing stock in the area. During construction, it is possible that temporary local housing would be needed for workers who are not from the Reservation or the surrounding area. If temporary housing is needed, the housing vacancy rate for the Mountain Empire subregion would support the rental or lease of existing homes in the area.

As described in Section 3.7, Socioeconomic Conditions, due to the fact that Tribal land is held in a Tribal Trust and is not subject to the same property-transfer process as non-Tribal Trust land, home values on the Reservation cannot be assessed or compared with home values in the surrounding communities.

Deflation of home or property value is a common concern regarding the presence of wind turbines located near existing homes or property. While the future property values cannot be easily predicted, many economic and social factors influence the value of homes and property in an area; however, studies have suggested that the presence of wind turbines is not one of these factors. Document review completed for other recent wind energy projects (the 2008 Sunrise Powerlink Project, the 2010 Tule Wind Project, and the 2015 Desert Renewable Energy Conservation Plan) consistently showed that any effects on home values are minimal. As such, any changes in property values as a result of the Project are expected to be insignificant; thus, Alternative 1 would not have an adverse effect on housing stock, housing prices, or property values.

Alternative 2: Approximately 202 MW

The effects associated with Alternative 1 would be similar for Alternative 2. Demand for temporary housing supply would be similar to that under Alternative 1 because construction efforts would be similar in duration and number of workers. Alternative 2 would also involve the installation of wind turbines that would impact the adjacent community similarly to Alternative 1. No adverse effects on housing demand or property values were identified for Alternative 2.

No Action Alternative

Under the No Action Alternative, no development would take place and no effects on property values or housing would occur.

Impact SOCIO-3 Would the Project result in effects on public services or infrastructure/utilities that would exceed available services or supply or affect availability in the local areas?

Alternative 1: Approximately 252 MW

Fire Services

Alternative 1 would not result in an adverse impact on fire protection due to the implementation of standard fire prevention procedures. As discussed in Section 3.7, the Campo Reservation Fire Protection District provides fire protection services for the Project Site and the overall Reservation as well as for nearby reservations and unincorporated lands. Each wind turbine would have a maintained 50-foot fuel modification zone, which would consist of cropped vegetation to reduce fire potential. Additionally, there would be a fuel modification zone of 10 feet to each side of the electrical collector and communication cables, 6 feet from the shoulder of the access roads, and 100 feet around the foundations of the proposed buildings.

During construction, operation, and decommissioning of Alternative 1, there would be increased human activity and ignition sources, including equipment that could create sparks, be a source of heat, or leak flammable materials on the Project Site. The applicable state, national, and international fire codes and additional measures required for the Project directly address the fire concerns associated with this Project's location; these will be provided in more detail in the Project's Fire Protection Plan, which outlines fire protections measures for Project construction and operations. Implementation of the Fire Protection Plan would reduce the risk of the accidental ignition of wildfires during construction and operation of Alternative 1.

During construction, the fire management areas would also include an aboveground water tank near existing wells for fire protection. Additionally, all electrical equipment would be built on concrete pads or with metal structures and components, which would reduce the risk of accidental fire ignition. During operations, the fire suppression water would be drawn from on-site water wells. Therefore, Alternative 1 would have no adverse effects on fire services.

Police Services

Alternative 1 would not result in a substantial permanent increase in population creating a significant increased demand on police services on the Reservation. The increase in workers due to construction would be temporary and the increase in operations workers would be modest. Additionally, security at the facility would include patrols, fencing, and security lighting. Therefore, Alternative 1 would not result in a substantial increase in need of the County Sheriff's department and Tribal security forces; thus, it would have no adverse effects on police resources.

Schools

Alternative 1 would not result in a substantial permanent increase in population creating a significant increased demand on educational resources and programs on the Reservation. The increase in workers due to construction would be temporary and the increase in operations workers would be modest. Therefore, Alternative 1 would not result in a substantial increase in enrollment that would exceed capacity of local schools or educational programs and would therefore have no adverse effects on school resources.

Library Services

Alternative 1 would not result in a substantial permanent increase in population creating a significant increased demand on library services on the Reservation. The increase in workers due to construction would be temporary and the increase in operations workers would be modest. Therefore, Alternative 1 would not result in a substantial increase in demand for libraries and would therefore have no adverse effects on library resources.

Health Services

Alternative 1 would not result in a substantial permanent increase in population creating a significant increased demand on health services on the Reservation. The increase in workers due to construction would be temporary and the increase in operations workers would be modest. Therefore, Alternative 1 would not result in a substantial increase in demand or exceed capacity for health services; therefore, it would have no adverse effects on health resources.

Water and Sewer

Alternative 1 would require approximately 173 acre-feet of water during construction for concrete mixing, dust suppression, soil compaction, equipment cleaning, and various other construction-related uses. Water would be provided via on-site wells and local commercial vendors. The impacts associated with the use of existing On-Reservation wells are discussed in Section 4.2, Water Resources, of this EIS. Construction-related wastewater generation includes sanitary waste, stormwater runoff, equipment washdown water, and water from excavation during construction. This wastewater would be discharged into a septic system and would be disposed of in accordance with all federal, state, regional, and local laws.

During operations, water would be provided via existing On-Reservation wells; the effects of well-water usage are also discussed in Section 4.2. Wastewater would be disposed of through a septic system. As discussed in greater detail in Section 4.2, Alternative 1 would not result in any adverse effects to water and sewer systems.

Solid Waste

Solid waste during construction would mainly consist of general construction waste; i.e., concrete, shipping materials, trash from offices, broken crane mats, and cribbing. Solid waste during operations would mainly consist of waste generated during routine maintenance and repairs. Materials (e.g., steel scrap and wood) would be recycled whenever possible, used as in-fill (e.g., concrete), or removed to a local landfill. During decommissioning mots components would be recycled or reused, what can't be would be disposed of at a local landfill.

The closest licensed landfill to the Reservation is the Sycamore Landfill located at 8514 Mast Boulevard in Santee. Construction wastes could be deposited at the three landfills nearest to the Reservation: the Sycamore Landfill, Otay Landfill, and Miramar Landfill, all three of which have sufficient capacity. Additionally, all construction waste disposal would be disposed of Off-Reservation and would be compliant with the County Construction and Demolition Materials Ordinance, which would ensure that construction waste is diverted away from landfill disposal to a recycling facility. The amount of waste produced by Alternative 1 is not expected to adversely impact local landfills by overwhelming their ability to serve existing local demands; therefore, Alternative 1 would have no adverse effect with regard to solid waste.

For the reasons stated above, the Project would not result in an adverse effect on public services or utilities.

Alternative 2: Approximately 202 MW

Alternative 2 would have a similar impact to public services as Alternative 1. The increase in population associated with Alternative 2 would be similar to that of Alternative 1; thus, impacts to fire services, police services, school resources, library resources, and health services would be similar. Additionally, Alternative 2 would require approximately 20% less water during construction and operations and would result in a similar impact to sewer and solid waste. Therefore, Alternative 2 would result in no adverse effect on public services or utilities.

No Action Alternative

Under the No Action Alternative, no adverse effect on public services and infrastructure/utilities would occur.

Impact SOCIO-4 Would the Project have disproportionately high and adverse effects on minority and/or low-income populations?

Alternative 1: Approximately 252 MW

As discussed under Impact SOCIO-1, Tribal members would directly benefit from the completion of Alternative 1 through the creation of jobs/income and may be indirectly benefited through overall economic development on the Reservation. Alternative 1 may also benefit populations off Reservation through employment. Further, local communities throughout the County may also benefit through the purchase of materials, services, and supplies associated with the construction and operation of Alternative 1.

This EIS found that Alternative 1 would have adverse effects on noise and unavoidable adverse effects on visual resources. These impacts would be most strongly experienced in the vicinity of the Alternative 1 Project Site and thus the Reservation and adjacent areas. As discussed in Section 3.7, the Reservation has a minority population percentage of 95%, which far exceeds the minority population percentage of the County, which is 54.5%. Additionally, the Reservation has a higher percentage of those living below the poverty line in comparison to the subregion within the County, which has 20.4% of the population living below the poverty line.

Due to the high percentage of minority and low-income populations living on the Reservation and the fact that those living on the Reservation will experience the adverse impacts of Alternative 1 the most, Alternative 1 would result in disproportionately high and adverse effects on minority and/or low-income populations. MM-NOI-1 (see Section 4.10, Noise) would reduce the severity of the Project's effects on noise under Alternative 1 for construction-related noise to less than adverse; however, operations-related noise effects would remain unavoidable and adverse. For visual effects, MM-VIS-1 through MM-VIS-7 (see Section 4.11, Visual Resources) would not reduce effects to less than adverse; this effect would remain unavoidable. Thus, the same population that stands to benefit the most economically from Alternative 1 would also experience an adverse and unavoidable effect in terms of environmental justice.

Alternative 2: Approximately 202 MW

Alternative 2 would have a similar but reduced impact on minority and/or low-income populations compared with Alternative 1 due to unavoidable adverse effects on visual resources. Like Alternative 1, Alternative 2 would result in unavoidable adverse impacts regarding environmental justice. MM-NOI-1 would be implemented to reduce the Project's effects on noise under Alternative 1; these effects would be reduced for construction-related noise to less than adverse; however, operations-related noise effects would remain unavoidable and adverse. MM-VIS-1 through MM-VIS-7 would reduce effects but not to less than adverse. Thus, the same population that stands to benefit the most economically from Alternative 2 would also experience an adverse and unavoidable effect in terms of environmental justice.

No Action Alternative

Under the No Action Alternative, no construction or operations would occur and no effects related to environmental justice would occur.

4.7.3 Mitigation Measures

See Section 4.10 and Section 4.11 of this EIS for discussions of the following recommended mitigation measures, which would also reduce adverse effects on socioeconomic conditions:

MM-NOI-1 (Construction Noise Minimization)

MM-VIS-1 (Temporary Screening)

MM-VIS-2 (Activity Limits Signposting Guidelines)

MM-VIS-3 (Minimization of Views of Graded Terrain)

MM-VIS-4 (Revegetation of Disturbed Areas)

MM-VIS-5 (Minimization of Vegetation and Topsoil Removal)

MM-VIS-6 (Color Mitigation)

MM-VIS-7 (Conductor Design Requirements)

Full details of these mitigation measures are located in Appendix P.

4.7.4 Conclusions

Implementation of MM-NOI-1 would reduce potential effects on socioeconomic conditions to less than adverse; however, implementation of MM-VIS-1 through MM-VIS-7 would not reduce effects to a less than adverse level. Therefore, these effects would remain unavoidable and adverse. The Project alternatives would result in an adverse effect on environmental justice that is unavoidable and adverse, although the affected populations would also benefit the most, economically, from the construction and operation of the Project.

4.8 RESOURCE USE PATTERNS

This section analyzes the circumstances relevant to potential resource use pattern impacts of the Project.

4.8.1 Impact Indicators

The Project alternatives would adversely affect resource use patterns if found to:

- Adversely affect an existing resource use activity by interfering with access to some or all of a resource area, substantially reducing the availability of a resource, or reducing the quality of a resource.

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect.

4.8.2 Effects

Summary Table
Resource Use Patterns Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact RUP-1	No adverse effects	None
Impact RUP-2	No adverse effects	None
Alternative 2: Approximately 202 MW		
Impact RUP-1	No adverse effects	None
Impact RUP-2	No adverse effects	None
No Action Alternative		
Impact RUP-1	No adverse effects	None
Impact RUP-2	No adverse effects	None

Impact RUP-1 ***Would the Project adversely affect an existing resource use activity by interfering with access to some or all of a resource area, substantially reducing the availability of a resource, or reducing the quality of a resource?***

Alternative 1: Approximately 252 MW

Hunting, Fishing, and Gathering

Impacts of Alternative 1 on traditional subsistence patterns associated with hunting, fishing, or gathering as a food source would be negligible. There are currently no significant hunting, fishing, or gathering activities on the Reservation. Project components would be constructed in areas avoiding impacts to biologically sensitive areas, as described in Section 4.5, Biological Resources. Therefore, no direct or indirect adverse effects were identified and there would not be an adverse effect on hunting, fishing, or gathering as a result of Alternative 1.

Timber Harvesting

Impacts of the Project on timber harvesting would be negligible, because the Tribe does not rely on timber harvesting as a main source of income or resources. Timber is not expected to be removed as a result of Alternative 1's implementation. Alternative 1 is not expected to block or hinder the access to timber resources. Therefore, no direct or indirect adverse effects were identified and there would not be an adverse effect on timber harvesting as a result of Alternative 1.

Agricultural Uses

Potential impacts of Alternative 1 on agricultural uses would be negligible due to the limited amount of arable land and the absence of commercial farming on the Reservation. Potential impacts on cattle grazing would occur in the form of a slight decrease in the amount of land available for grazing, although only very limited land for grazing currently exists. The amount of cattle grazing lost and the impact on cattle grazing would be minimal. Therefore, no direct or indirect adverse effects were identified, and no adverse effect would occur on agricultural uses as a result of Alternative 1.

Mining

Mining activities on the Reservation are currently limited to a sand mining quarry operated by Muht Hei Inc., doing business as Campo Materials Corporation. Alternative 1 would not impact mining activities on the Reservation. Therefore, no direct or indirect adverse effects were identified and no adverse effect would occur on mining resources as a result of Alternative 1.

Recreation

Land used for recreation activities would not be adversely impacted by Alternative 1. The ECCS lines along Manzanita Road, which is located in the vicinity of On-Reservation recreational uses, would be placed underground. During construction, up to an approximately 40-foot-wide area would be required to install the ECCS cables, which may cause temporary disturbance to the entrance to an off-road motorcycle area. However, these impacts would be short term in nature and the motocross track would not be permanently impacted.

Other recreation centers, such as those along Church Road near SR-94, would not be directly impacted by the Project. The wind turbines would be located on ridges with high elevations, often in areas with rugged terrain and minimal opportunities for recreation. Other Project components would not impact recreation locations. The ECCS would be primarily belowground, and the collector substation and O&M building would be located away from areas used for recreation. Therefore, no direct or indirect adverse effects on resource use patterns would occur as a consequence of Alternative 1.

Alternative 2: Approximately 202 MW

Impacts associated with Alternative 2 would be similar to those described for Alternative 1, although Alternative 2 would have a reduced footprint and smaller area of disturbance, since hunting, fishing, and gathering; timber harvesting; agricultural uses; mining; and recreation uses would not be affected. Therefore, no direct or indirect adverse effects on resource use patterns would occur as a consequence of Alternative 2.

No Action Alternative

Under the No Action Alternative, no construction would occur and there would be no adverse effect on resource use patterns. Thus, no adverse effects were identified for resource use patterns, and no mitigation is recommended.

Impact RUP-2 Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project adopted for the purpose of avoiding or mitigating an environmental effect?

Alternative 1: Approximately 252 MW

Under the terms of the lease, certain Tribal laws apply to the Lessee, including certain provisions of the Tribe's Tax Ordinance and Tribal Employment Rights Ordinance. Appendix C discusses Tribal land use standards relating to the potential environmental effects addressed in this EIS including the CEPA statutes, the Land Use Code, and the Land Use Plan. The Project will be developed in accordance with the Resource Development Plan approved by the BIA as part of the lease approval process. The Project is generally consistent with the Tribe's Land Use Plan. Under that Plan, the Tribe has several established land use categories for the Reservation, including Wilderness, Residential/Cluster Residential/Grazing/ Agricultural, Civic, Tribal Enterprise, Commercial, Industrial, and Campo Renewable Energy Zones.

Renewable energy projects are expressly allowed in all land use categories if reviewed and approved by the Tribe's General Council, as was the lease.

In addition, Alternative 1 would be consistent with the setback requirement in the Tribe's Land Use Code. Under the Campo Lease, the proposed wind turbines constructed with at least a 0.25-mile setback from any existing residential structure or Tribal building.

Alternative 1 would result in a land use change as it would introduce additional industrial renewable energy facilities into a rural environment. While the Tribe's Land Use Plan's main goal is to ensure development is consistent with its economic and social goals and does not threaten environmental or cultural resources, the Land Use Plan also recognizes the importance of long-term planning that ensures future growth will not harm the existing environment. Alternative 1 is generally consistent with the Tribe's Land Use Code and Land Use Plan.

The Boulder Brush Facilities on land within the County's jurisdiction are compatible with the County's Land Use designations (Zoning and General Plan) with a Major Use Permit (MUP), application foo which is under review by the County. Therefore, Alternative 1 would not result in adverse effects on resource use patterns, and no direct or indirect conflicts with applicable plans or policies would occur as a result of Alternative 1.

Alternative 2: Approximately 202 MW

Impacts of Alternative 2 would be the similar to those described for Alternative 1, but Alternative 2 would have an approximately 20% reduced footprint and smaller area of disturbance. The Boulder Brush Facilities on land within the County's jurisdiction would be unchanged in Alternative 2 compared to Alternative 1, and as such compatible with the County's Land Use designations (Zoning and General Plan) with a Major Use Permit (MUP), application foo which is under review by the County. Therefore, no direct or indirect conflicts with applicable plans or policies would occur as a consequence of Alternative 2.

No Action Alternative

Under the No Action Alternative, no construction or use would occur to conflict with the Tribe's existing Land Use Plan or Land Use Code, or with County land use designations. Therefore, no direct or indirect conflicts with applicable plans or policies would occur.

4.8.3 Mitigation Measures

The Project alternatives would not result in adverse effects on resource use patterns. No mitigation is recommended.

4.8.4 Conclusions

The Project alternatives' impacts on resource use patterns would not result in adverse effects and no mitigation is recommended.

4.9 TRAFFIC AND TRANSPORTATION

This section discusses potential effects on existing traffic and transportation conditions that may occur with implementation of the Project. The section begins by summarizing a quantitative analysis of potential impacts in traffic volumes that appears in full in the Traffic Impact Analysis (TIA) prepared for the Project and included as Appendix J to this EIS. In short, the Project is only expected to generate measurable traffic during the construction phase; operational traffic would be *de minimis*. The section also discusses the potential for construction of the Project alternatives to degrade road conditions and result in hazardous traffic conditions, and provides mitigation measures recommended to reduce potential traffic and transportation-related impacts to less than adverse.

4.9.1 Impact Indicators

The Project alternatives would result in an adverse effect with respect to traffic and transportation if found to:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- Degrade road conditions as a result of construction.

- Result in hazardous traffic conditions.

4.9.2 Effects

Summary Table
Traffic and Transportation Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact TRA-1	Adverse effects on capacity of the street system during construction	MM-TRA-1
Impact TRA-2	Adverse effects due to road degradation during construction	MM-TRA-2
Impact TRA-3	Adverse effects on public roadway safety during construction	MM-TRA-3
Alternative 2: Approximately 202 MW		
Impact TRA-1	Adverse effects on capacity of the street system during construction	MM-TRA-1
Impact TRA-2	Adverse effects due to road degradation during construction	MM-TRA-2
Impact TRA-3	Adverse effects on public roadway safety during construction	MM-TRA-3
No Action Alternative		
Impact TRA-1	No adverse effects	None
Impact TRA-2	No adverse effects	None
Impact TRA-3	No adverse effects	None

MW = megawatts.

The Tribe does not maintain service level standards for roads or intersections; however, as discussed in the TIA, the standard established by the County General Plan's Mobility Element (County of San Diego 2011) is used here for the sake of comparison, even though the roads and intersections are outside County jurisdiction. For purposes of this analysis, an adverse effect would be identified if the Project would degrade service at the studied locations to below level of service (LOS) D (see Section 3.9, Traffic and Transportation, and Appendix J for explanation of LOS). As shown in Table 3.9-1 (provided in Appendix D to this EIS), all of the studied street segments are operating at LOS C or better under existing conditions. As shown in Table 3.9-2 (Appendix D), all of the studied intersections are operating at LOS A or LOS B during the peak hours under existing conditions.

Impact TRA-1 Would the Project cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system?

The increase in traffic caused by the Project and its potential effect on the street system was determined by an LOS analysis (see Section 3.9 and Appendix J for methods used).

Alternative 1: Approximately 252 MW

Traffic Generated

The Project, under Alternative 1, would generate vehicle and truck trips during construction. The traffic analysis performed as part of the TIA used a conservative assumption of the number of worker and truck

trips generated during the peak construction phase of the Project during the 14-month construction period. Peak construction traffic would be composed of both worker trips to/from the Project Site (passenger cars) and deliveries of water and materials (vendor and haul trucks).

Table 4.9-1 (see Appendix D) depicts the Project's estimated trip generation for 501 workers, 22 vendor trucks, and 28 haul trucks. Since the work shift would begin before the AM peak period (7:00–9:00 a.m.) and workers would likely arrive before the AM peak hour starts, it was estimated that approximately 50% of the workers would arrive during the AM peak hour. However, it was estimated that 100% of the workers would depart during the PM peak hour. Although it is expected that some carpooling would occur, no credits for carpooling among workers were assumed in order to provide a conservative analysis. Truck traffic to and from the site would be generated throughout the workday; therefore, truck trips were distributed evenly throughout the workday. It should be noted that there may be some peak hour restrictions on transporting oversized equipment truck loads, which may affect truck trips to the Project Site.

Based on the peak construction traffic estimate, Alternative 1 would generate 1,102 total daily trips, including 261 AM peak hour trips (256 inbound and 5 outbound) and 511 PM peak hour trips (5 inbound and 506 outbound). With the application of passenger car equivalent (PCE) factors to truck trips, the Alternative 1 would generate 1,251 total PCE daily trips, including 275 PCE trips during the AM peak hour (263 inbound and 12 outbound) and 525 PCE trips during the PM peak hour (12 inbound and 513 outbound).

Existing Traffic Conditions plus Alternative 1 Traffic Conditions

Intersection Operations: Table 4.9-2 (Appendix D) shows the results of the intersection impact analysis for Alternative 1 provided in the TIA (Appendix J) for the "Existing plus Project" scenario. Based on the appropriate significance criteria, one study area intersection is forecast to operate at LOS D conditions (during the PM peak hour), one is forecast to operate at LOS C conditions (during the PM peak hour), and the remaining six intersections continue to operate at LOS B or better despite the addition of the peak construction-related traffic from Alternative 1. Alternative 1 would cause the Crestwood Road/Interstate (I) 8 westbound ramps intersection to operate at LOS D during the PM peak hour, with an increase in delay greater than 2 seconds per SANTEC/ITE criteria for adverse impact. Implementation of the recommended MM-TRA-1 (Use of Traffic Flagger during PM Peak Hour) (see Section 4.9.3, Mitigation Measures) would minimize delays and improve intersection LOS at the impacted intersection and therefore would reduce the Project's direct effects to less than adverse.

Roadway Segment Operations: As depicted in Table 4.9-3 (Appendix D), all study area segments are calculated to continue to operate at LOS C or better on a daily basis despite the addition of peak construction Project traffic. No direct adverse effects on roadway segments would occur as a result of implementation of Alternative 1.

Freeway Segment Operations: As depicted in Table 4.9-4 (Appendix D), all study area segments are calculated to continue to operate at LOS B or better during the AM and PM peak hours despite the

addition of peak construction Project traffic. No direct adverse effects on freeway mainline segments would occur as a result of implementation of Alternative 1.

Alternative 2: Approximately 202 MW

Traffic Generated

Alternative 2 would result in the same peak amount of traffic as Alternative 1. Alternative 2 would cause the Crestwood Road/I-8 westbound ramps intersection to operate at LOS D with an increase in delay greater than 2 seconds. Therefore, Alternative 2 would potentially result in adverse effects on traffic and transportation conditions. Implementation of recommended MM-TRA-1 (see Section 4.9.3) would reduce these effects to less than adverse.

No Action Alternative

Under the No Action Alternative, no construction would occur and no new traffic would be added to the existing intersections or roadway segments. Therefore, no direct or indirect adverse effects were identified.

Impact TRA-2 Would the Project degrade road conditions as a result of construction?

Alternative 1: Approximately 252 MW

The Project, under Alternative 1, would be accessed from a combination of existing public roads and newly constructed dirt roads. Construction of the Project, under Alternative 1, would include the construction of new dirt roads and modification of some existing roads within the Reservation. Damage to existing roadways by construction vehicles and equipment (e.g., oversized trucks used for wind turbine component delivery, concrete trucks) could occur from vehicles entering and leaving roadways during construction. These effects would be adverse; however, implementation of recommended MM-TRA-2 (Repair and Restoration of Roads) (see Section 4.9.3), entailing repair and restoration of roadways to their preconstruction condition at a minimum, would reduce the effects to less than adverse.

Alternative 2: Approximately 202 MW

Impacts associated with Alternative 2 would be similar to those associated with Alternative 1 because the delivery trucks and necessary equipment components would be similar. Because the type and weight of construction equipment would be the same as for Alternative 1, the potential adverse effects would be the same, although for a reduced duration. Therefore, an adverse direct effect would occur. Implementation of recommended MM-TRA-2 would repair roads upon completion of construction and reduce any traffic and transportation effects of Alternative 2 to less than adverse.

No Action Alternative

Under the No Action Alternative, there would be no construction; thus, no adverse effects on roadway conditions would occur.

Impact TRA-3 Would the Project result in hazardous traffic conditions?

Alternative 1: Approximately 252 MW

Construction of the Project under Alternative 1 would involve the use of public roads by trucks for transportation of turbine components and construction materials and movement of heavy equipment for turbine construction. In addition, dump trucks, concrete trucks, water trucks, and subcontractor trucks would all use public roads. All of these trucks are expected to use Crestwood Road and Ribbonwood Road.

Based on review of the as-builts at the I-8/Crestwood Road and Ribbonwood Road interchanges, the Crestwood Road undercrossing has a minimum vertical clearance of 16 feet, 11 inches, and the Ribbonwood Road undercrossing has a minimum vertical clearance of 19 feet, 1 inch. The California Vehicle Code, Section 35250, suggests that the maximum height of a vehicle cannot exceed 14 feet. Per the California Department of Transportation (Caltrans) Encroachment Permit (permit) process, the Project will be required to coordinate with Caltrans and obtain special permits for oversized vehicles that exceed 14 feet in height.

Large wind turbine components are delivered on specialized trucks of up to approximately 180 feet in length when loaded, with steering capabilities on rear axles to maneuver around corners. As part of the Caltrans permit process, any vehicles with excessive height and length are expected to require pilot cars, which typically provide overhead height warning devices to ensure that oversized loads do not exceed undercrossing height limits. The turn for these specialized trucks would potentially require use of the entire available pavement, requiring all other traffic to be stopped to ensure safe conditions. In addition, depending on the exact route for the turbines, the varying widths of lanes and shoulder clearance on public roads and the slow speeds at which these trucks travel would represent a hazard to motorists without appropriate warning.

These potential hazards to motorists on public roadways would be an adverse effect of Alternative 1. However, these effects would be reduced to less than adverse by implementation of recommended MM-TRA-3 (Traffic Control and Management Plan) (see Section 4.9.3).

While operation of the Project would not involve substantial trips or an anticipated need for oversized vehicles, there is the potential for wind turbine component failure. In such an event, the delivery of a replacement component or components would result in the same potential hazard as described for the delivery of wind turbine components during construction. Implementation of MM-TRA-3 would reduce the adverse effects of traffic hazards during component replacement delivery to less than adverse.

Alternative 2: Approximately 202 MW

Traffic and transportation effects associated with Alternative 2 would be similar to those associated with Alternative 1, since the delivery trucks and necessary equipment components are similar. However, the number of deliveries by oversized trucks for Alternative 2 would be reduced because of the reduced number of turbines. Because the type and length of delivery equipment would be similar to those for Alternative 1, the potential adverse effects would be the same. Although adverse direct effects would occur during construction and operation, implementation of recommended MM-TRA-3 (see Section 4.9.3) would reduce the effect to less than adverse through development of a traffic control plan.

No Action Alternative

Under the No Action Alternative, there would be no construction and no hazardous traffic conditions would occur.

4.9.3 Mitigation Measures

The implementation of the following recommended mitigation measures would mitigate adverse effects on traffic and transportation resulting from Project implementation to less than adverse:

MM-TRA-1 (Use of Traffic Flagger during PM Peak Hour)

MM-TRA-2 (Repair and Restoration of Roads)

MM-TRA-3 (Traffic Control and Management Plan)

Full details of these mitigation measures are located in Appendix P.

4.9.4 Conclusions

As a consequence of anticipated increases in traffic, specialized component delivery, and roadway degradation during construction, the Project alternatives would potentially result in adverse effects related to traffic and transportation. Implementation of MM-TRA-1, MM-TRA-2, and MM-TRA-3 is recommended to reduce these effects to less than adverse.

4.10 NOISE

This section discusses the noise effects of the Project based on the methodology and analysis presented in the Acoustical Analysis Report provided as Appendix K to this EIS.

4.10.1 Impact Indicators

For purposes of this environmental review, the Project would have an adverse effect on the environment if it would:

- Expose persons to or generate noise levels in excess of applicable standards.

- Expose persons to or generate excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent (operations-related) increase in ambient noise levels in the Project vicinity above levels existing without the Project.
- Result in a substantial temporary (construction-related) or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project.

Evaluation of adverse effects requires comparison of Project-attributed noise and vibration to applicable standards and guidance established at the federal, state, and local levels.

Under Section 4.5.4, Noise Standards and Guidelines, of its Final Programmatic EIS on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005), the U.S. Bureau of Land Management (BLM) mentions the EPA's public-protecting guideline of 55 A-weighted decibel (dBA) day/night noise level (L_{dn}), understood to be assessed at the exterior of any existing noise-sensitive land use (NSLU) where the existing outdoor ambient sound level is not already in excess of this value. In the absence of applicable local noise regulations or other established policies at an off-site (outside the Campo Corridor) On-Reservation NSLU, this EPA-based recommendation of 55 dBA L_{dn} used by the BLM functions as an appropriate criterion for determining potential noise impact from the operation of the Project by the BIA.

For evaluating potential construction noise impacts at On-Reservation NSLUs, and due to lack of other applicable standards, guidance from the Federal Transit Administration (FTA) recommends a daytime standard at residential land uses of no more than 80 dBA (FTA 2006) energy-averaged over an 8-hour period (equivalent energy level (L_{eq})$_{(8hr)}$). For Off-Reservation NSLUs (i.e., private lands within the jurisdiction of unincorporated San Diego County), the San Diego County Noise Ordinance states an 8-hour energy-averaged construction activity noise level in excess of 75 dBA L_{eq} would produce an adverse effect.

Assessment of Project-attributed vibration at receiving occupied structures, with respect to building damage risk, uses the FTA-based guidance level of 0.2 inches per second peak particle velocity (PPV) for "non-engineered timber and masonry buildings" (FTA 2006).

4.10.2 Effects

Summary Table
Noise Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact NOI-1	Adverse effects relating to operation- and construction-related noise at NSLUs. Operation effects are significant and unavoidable.	MM-NOI-1 (for construction)
Impact NOI-2	No adverse effects	None

Summary Table
Noise Effects and Mitigation

Impact Number	Effect	Mitigation
Impact NOI-3	Adverse effects relating to operation-related noise at NSLUs. Operation effects are significant and unavoidable.	None
Impact NOI-4	Adverse effects relating to construction-related increases in ambient noise levels	MM-NOI-1
Alternative 2: Approximately 202 MW		
Impact NOI-1	Adverse effects relating to operation- and construction-related noise at NSLUs. Operation effects are significant and unavoidable.	MM-NOI-1 (for construction)
Impact NOI-2	No adverse effects	None
Impact NOI-3	Adverse effects relating to operation-related noise at NSLUs. Operation effects are significant and unavoidable.	None
Impact NOI-4	Adverse effects relating to construction-related increases in ambient noise levels	MM-NOI-1
No Action Alternative		
Impact NOI-1	No adverse effects	None
Impact NOI-2	No adverse effects	None
Impact NOI-3	No adverse effects	None
Impact NOI-4	No adverse effects	None

MW = megawatts; NSLU = noise-sensitive land use; MM = Mitigation Measure.

Impact NOI-1 Would the Project expose persons to or generate noise levels in excess of applicable standards?

Alternative 1: Approximately 252 MW

Project Operation

Project operation would create stationary noise sources on the Reservation from operating wind turbines, the collector substation and O&M building, transmission lines, and maintenance and inspection activities. As detailed in the Acoustical Analysis Report (Appendix K), predicted sound levels due to the aggregate of these sources range from 44 dBA L_{dn} to 65 dBA L_{dn} at representative On-Reservation NSLUs and at Project property boundaries. Depending on average wind speed as received by the operating turbines at hub height above grade, estimated day–night sound levels exceed the guidance-based threshold of 55 dBA L_{dn} at NSLUs associated with baseline field survey locations LT-1, LT-2, LT-5, and LT-8 through LT-10, because of the presence of more than one possible turbine location at the 0.25-mile distance. At LT-9, the analysis predicts 64 dBA L_{dn} due to the proximity of five turbines proposed to be located within 0.25 miles of the represented NSLU. After adjusting for implementing a 0.25-mile minimum screening distance required by the lease between any potential On-Reservation NSLU and a possible turbine site, certain proposed turbine locations (among the 76 sites evaluated) would not be slated for construction; therefore, the predicted operations noise level at LT-9 under this different scenario would be 40 dBA L_{dn} without the specified nearby turbines. The scenario evaluated is a worst-case modeling of all 76 possible turbine locations, of which only 60 can be constructed

under the terms of the Campo Lease. Selection of the final 60 turbine locations should consider the noise effects. While this would help reduce adverse effects from operations, it would likely not eliminate all instances; therefore, effects would remain adverse and unavoidable.

For representative On-Reservation locations LT-1, LT-2, LT-3, LT-8, LT-9, and LT-10, predicted Project turbine operations noise at maximum levels (i.e., under received average wind speed at hub height between 10 meters per second [m/s] and 15 m/s [cut-off speed]) is expected to cause the combined future noise level (i.e., an acoustical combination of all sound sources in the vicinity, including neighboring wind turbine projects) to exceed the EPA guidance limit. At all of the other representative On-Reservation locations associated with baseline field survey positions (as described in Appendix K), the "cumulative + existing" is already in excess of 55 dBA L_{dn}, the predicted project noise level is either not greater than the cumulative + existing portion of the future total noise level, or its acoustical contribution is not sufficient to result in a future combined adverse effect when compared to the EPA guidance standard. At an average wind speed of 7 m/s, aside from LT-9, there would be no cumulatively adverse effect at any of the 13 studied locations.

Spillover noise from the aggregate operation of Project wind turbines is expected to comply with County General Plan guidelines 4.1.A.i (60 dBA community noise equivalent level (CNEL)) at the nearest NSLUs located off Reservation. Northeast of location LT-10, where the threshold CNEL would be only 56 dBA (i.e., existing plus 10 dB, per County General Plan guidelines 4.1.A.ii), predicted spillover noise would be as high as 58 dBA CNEL.

With respect to the County's daytime and nighttime hourly L_{eq} limits per Noise Ordinance 36.404, predicted turbine noise levels could (depending on average wind speed received by the operating turbines) exceed limits on private lands within the County near representative project property line locations LT-1 and LT-10.

With respect to the County Wind Energy Turbines ordinance, C-weighted aggregate nighttime hourly L_{eq} is expected to be greater than the average measured A-weighted nighttime L_{90} plus 25 dB near representative project property line location LT-1 and LT-10.

Even with the instances of exceedance, operational noise from the Project is not expected to have a cumulatively considerable adverse effect on private lands within County jurisdiction.

With respect to the proposed high-voltage substation, the closest off-site potential NSLU within the jurisdiction of the County of San Diego would be located approximately 8,950 feet away. At this distance, the expected sound pressure level from continuous operation of the high-voltage substation transformers would be less than 20 dBA L_{eq} and hence is expected to result in a less than adverse effect.

Aboveground electrical transmission lines associated with the Boulder Brush Facilities may produce corona during normal operation, but even under foul weather conditions that would moisten or wet the conductor surfaces, the resulting noise would only be audible at very close distances and thus not result in an adverse effect.

Project maintenance activities and post-construction additional roadway traffic due to Project operation would be sufficiently modest and/or infrequent enough to not result in adverse noise effects.

Project Construction

Aside from the nearest Off-Reservation NSLU to the Boulder Brush Facilities access road, predicted construction noise would not exceed the San Diego County limit of 75 dBA L_{eq8h} at the closest Off-Reservation NSLU. The BMPs for controlling noise emission from construction activities are recommended as a mitigation measure (MM-NOI-1 (Construction Noise BMPs)) (see Section 4.10.3, Mitigation Measures) to help ensure consistency with prediction parameters and help keep construction noise at County-jurisdiction NSLUs (including the receptors near the previously mentioned access road) to levels compliant with the 75 dBA $L_{eq(8h)}$ regulation.

Project-related construction traffic noise and construction vibration are not expected to produce adverse effects on NSLUs.

For On-Reservation NSLUs, the highest noise levels are predicted to occur during clearing, grading, and construction of access roads when noise levels from construction activities would be as high as 75 dBA L_{eq} at the nearest existing residences. During other phases of construction work and more typically, the noise levels would range from approximately 45 to 74 dBA L_{eq} at the nearest noise sensitive receptors. Since these construction activities would not be expected to generate short-term noise levels greater than 80 dBA L_{eq} at existing NSLUs, the construction noise at these On-Reservation receptors is not expected to exceed the FTA's 80 dBA $L_{eq(8hr)}$ noise level criteria and would not be considered an adverse effect.

Special, impulse-producing construction activities (blasting, rock drilling, rock crushing) are expected to comply with the County impulse noise standard (82 dBA maximum measured sound level (L_{max})), and thus not yield adverse effects for distant NSLUs within County jurisdiction.

Although construction noise impacts are not anticipated on the Reservation, the construction activity BMPs in MM-NOI-1 are nonetheless recommended as responsibilities of the construction contractor(s). Further, expected construction activity noise exposure at an Off-Reservation NSLU as close as 80 feet to Ribbonwood Road, which would undergo improvements to allow an access route to the Boulder Brush Facilities, would be higher than the County's 75 dBA Leq(8hr) threshold and thereby necessitate MM-NOI-1 implementation when construction activity is sufficiently proximate to the receptor. Implementation of MM-NOI-1 would reduce construction effects to less than adverse.

Project wind turbine pre-installation site selection offers potential mitigation in the form of reducing aggregate sound pressure level at an NSLU due to increased distance of one or multiple operating turbines. The quantifiable effect of such mitigation would depend on the proposed site selection scenario and its parameters, including the existing NSLU location, its current proximity to multiple on-site turbines, and the pre-existing outdoor ambient sound level. Until such potential mitigation is further defined and shown to be effective, adverse effects due to Project turbine operation are considered significant and unavoidable.

Alternative 2: Approximately 202 MW

Project Alternative 2 would include fewer turbines than Alternative 1. Therefore, there would be an increased likelihood of fewer adverse effects on NSLUs resulting from operation of the Project. The Alternative 2 layout of operating turbines would cause exceedance at only three On-Reservation locations (LT-1, LT-2, and LT-10) under similar wind speed conditions as those modeled for Alternative 1. And at these same representative locations, the Project's contribution to a cumulative noise level would also be cumulatively considerable. These effects would remain adverse and unavoidable with the currently modeled turbine locations in Alternative 1 and Alternative 2.

Construction-related adverse noise effects at the same NSLUs would be comparable to those under Alternative 1 thus creating conditions that would encourage implementation of MM-NOI-1 (see Section 4.10.3). Implementation of MM-NOI-1 would reduce construction effects to less than adverse.

No Action Alternative

Under the No Action Alternative, there would be no construction or operation; thus, no adverse effects due to noise would occur.

Impact NOI-2 Would the Project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Alternative 1: Approximately 252 MW

Construction activities represent the only expected source of potentially substantial groundborne vibration or groundborne noise levels related to the Project. At a distance of 116 feet (closest identified Off-Reservation receptor to the On-Reservation Campo Wind area), vibration levels during construction are anticipated to be less than 0.006 inches per second PPV from construction activities at the nearest off-site residences. At a distance of only 80 feet, an Off-Reservation receptor nearest to Boulder Brush Facilities access road improvements might experience as high as 0.06 inches per second PPV. As both estimated construction-attributed vibration velocity levels are less than the 0.2 inches per second PPV threshold (FTA 2006), effects would not be considered adverse.

Anticipated blasting events would be sufficiently distant from receptors and designed with appropriate charge weights and confinement to keep groundborne vibration below the aforementioned FTA guidance criteria to avoid adverse effects related to human annoyance and building damage risk.

Alternative 2: Approximately 202 MW

Project Alternatives 1 and 2 would require similar construction efforts, with Alternative 2 having an approximately 20% reduction in footprint and therefore less effects than Alternative 1. Thus, under both alternatives, groundborne vibration and groundborne noise effects would not be adverse.

No Action Alternative

Under the No Action Alternative, there would be no construction or operation; thus, no adverse groundborne vibration and groundborne noise effects would occur.

Impact NOI-3 Would the operation of the Project result in a substantial permanent (operations) increase in ambient noise levels in the Project vicinity above levels existing without the Project?

Alternative 1: Approximately 252 MW

Operation of Project wind turbines would contribute to raising the outdoor ambient sound level in the Project Area. As stated in the previous discussion under Impact NOI-1, the new levels would exceed applicable standards in certain locations under conditions where more than one turbine is located proximate to the 0.25-mile setback distance from residences required by the Campo Lease. As stated in the previous discussion under Impact NOI-1, the new levels would—at the same representative On-Reservation locations—contribute to an adverse cumulative or future noise level that includes current and proposed projects.

At the nearest potential Off-Reservation NSLU located within County jurisdiction, approximately 8,950 feet away from the Boulder Brush high-voltage substation, the expected sound pressure level from the high-voltage substation transformers would be less than 25 dBA. Generally, transformer noise includes low-frequency sound in the 125 Hz octave band center frequency, but also includes broadband sound from cooling fans. Existing outdoor sound includes low-frequency and broadband content, usually associated with heating, ventilation, and air-conditioning systems (e.g., home air-conditioners), roadway vehicles, and natural sources. Hence, the high-voltage substation noise would not create more than a 10 dB increase in the outdoor ambient sound environment at these Off-Reservation private lands within the County, and consequently no adverse noise effects would be expected. Additionally, while the high-voltage substation may still be audible at the nearest NSLU, there is also the opportunity for its noise to be—under the right conditions—masked by the audible sound spectra of the pre-existing outdoor ambient sound environment and its previously mentioned sources.

Aboveground electrical transmission lines associated with the Boulder Brush Facilities may produce corona during normal operation, but even under foul weather conditions that would moisten or wet the conductor surfaces, the resulting noise would not cause substantial increases to the pre-existing outdoor sound environment and thus would not result in an adverse effect.

Noise generated from the O&M building and other activities associated with Project maintenance and inspections would not be expected to result in increases of the existing outdoor ambient level greater than 10 dB at the nearest NSLU; hence, adverse noise effects from these sources are not anticipated. The Project would result in adverse effects related to a substantial increase in ambient noise from turbines. The scenario evaluated is a worst-case modeling of all 76 possible turbine locations, which cannot happen

under the terms of the Campo Lease. Noise effects should be considered as part of the final selection of locations for the 60 turbines. While consideration of noise effects as part of the selection process would help reduce adverse effects from operations, it would likely not eliminate all instances; therefore, effects would remain adverse and unavoidable.

Alternative 2: Approximately 202 MW

Alternative 2 would be expected to feature operations-related noise generators considered comparable (including an approximately 20% reduction in overall footprint) to those of Alternative 1. However, instances of multiple turbines in proximity to a noise-sensitive receptor, even while respecting the 0.25-mile setback requirement, would likely not be eliminated and as such would similarly cause higher than 10 dB increases of the existing outdoor sound environment at some NSLUs. Therefore, effects associated with Alternative 2 operations would be unavoidable and adverse.

No Action Alternative

Under the No Action Alternative, there would be no construction or operation; thus, no adverse effects would occur.

Impact NOI-4 Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?

Alternative 1: Approximately 252 MW

As discussed under Impact NOI-1, NSLUs on the Reservation are not expected to experience construction noise levels that exceed the FTA-based threshold of 80 dBA $L_{eq(8h)}$. However, pre-existing outdoor ambient sound levels at these On-Reservation NSLUs may experience relative quiet that creates the conditions for Project-attributed construction noise to cause more than a 10 dB increase to the ambient sound level. Similarly, Off-Reservation NSLUs discussed under Impact NOI-1 may also experience a temporary increase during construction in the outdoor ambient sound level of greater than 10 dB. Application of MM-NOI-1 (see Section 4.10.3) would help reduce construction noise levels at both of these categories of NSLU to not only help stay under the 75 dBA $L_{eq(8h)}$ and 80 dBA $L_{eq(8h)}$ limits per County and FTA standards, respectively, but also reduce the difference in sound levels between the anticipated construction noise and the existing ambient sound at a studied NSLU.

Construction noise would also be generated by workers commuting to and from the Project Site, and from deliveries of construction materials and Project components. As presented in the Traffic Impact Analysis (see Appendix J to this EIS), the expected increase in traffic volumes on I-8 and SR-94 attributed to the introduction of these Project-related vehicle trips would cause much less than a doubling of the existing traffic. Since a doubling of traffic volumes (with no changes in vehicle types or speed) would be required to cause a perceptible 3 dB increase, which is far less than the 10 dB increase guideline used to assess

adverse effects of the Project, the Project's contribution to traffic noise during Project construction would not be adverse.

Implementation of MM-NOI-1 (see Section 4.10.3) would help control and/or reduce noise from on-site construction activities expected to occur near existing residences.

Alternative 2: Approximately 202 MW

Both Project build alternatives would require similar construction efforts, with Alternative 2 having an approximately 20% reduction in overall development footprint and turbines. Thus, effects would be similar to those under Alternative 1, and the same mitigation would be recommended (MM-NOI-1, provided in Section 4.10.3) to reduce effects.

No Action Alternative

Under the No Action Alternative, there would be no construction; thus, no adverse effects would occur.

4.10.3 Mitigation Measures

Implementation of the following recommended mitigation measure would reduce construction related adverse effects from the Project build alternatives to less than adverse:

MM-NOI-1 (Construction Noise Best Management Practices)

Full details of this mitigation measure are located in Appendix P.

4.10.4 Conclusions

On-Reservation and Off-Reservation NSLUs are not expected to be adversely affected by phases of construction activity with respect to FTA-based guidance and County code requirements, respectively.

With few exceptions, predicted noise levels from proposed operation of the Project wind turbines would not exceed County standards or FTA-based guidance thresholds for Off-Reservation and On-Reservation NSLUs , respectively. Where adverse effects are currently predicted as of this analysis (and detailed further in Appendix K), the existing requirements of the lease that turbines be located no closer than 0.25 miles from a residence would reduce operation noise exposure at NSLUs of concern. However, effects related to noise would result from the Project build alternatives (1 and 2) where more than one turbine is located in proximity to the 0.25-mile setback from a residence. While consideration of noise effects as part of the selection of the final 60 turbine locations would help reduce adverse effects from operations, it would likely not eliminate all instances. Therefore, wind turbine operational noise effects would remain adverse and unavoidable.

Operation of the transformers and aboveground transmission lines proposed as part of the Boulder Brush Facilities on private land would not cause predicted noise levels that exceed applicable County requirements. Therefore, no adverse effects are anticipated from these facilities.

4.11 VISUAL RESOURCES

This section summarizes the methodology and other information presented in the Visual Impacts Analysis prepared for the Project (see Appendix L to this EIS).

4.11.1 Impact Indicators

For purposes of this environmental review, the Project would have an adverse effect on the environment if it would:

- Be incompatible with the existing visual character.
- Have a substantial adverse effect on a scenic vista.
- Substantially alter the existing scenic quality of a Type A scenic landscape.
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

4.11.2 Effects

Summary Table
Visual Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact VIS-1	Adverse effects	MM-VIS-1 through MM-VIS-7 (unavoidable adverse effects would remain)
Impact VIS-2	Adverse effects	MM-VIS-1 through MM-VIS-7 (unavoidable adverse effects would remain)
Impact VIS-3	No adverse effects	None
Impact VIS-4	Adverse effects	MM-VIS-8
Alternative 2: Approximately 202 MW		
Impact VIS-1	Adverse effects	MM-VIS-1 through MM-VIS-7 (unavoidable adverse effects would remain)
Impact VIS-2	Adverse effects	MM-VIS-1 through MM-VIS-7 (unavoidable adverse effects would remain)
Impact VIS-3	No adverse effects	None
Impact VIS-4	Adverse effects	MM-VIS-8
No Action Alternative		
Impact VIS-1	No adverse effects	None
Impact VIS-2	No adverse effects	None
Impact VIS-3	No adverse effects	None

Summary Table
Visual Resources Effects and Mitigation

Impact Number	Effect	Mitigation
Impact VIS-4	No adverse effects	None

Impact VIS-1 Would the Project be incompatible with existing visual character?

Alternative 1: Approximately 252 MW

As discussed in Appendix L, Alternative 1 (including wind turbines, transmission lines, collector lines, and other aboveground facilities) would be located On- and Off-Reservation lands considered of Type B and Type C visual quality for the purposes of this analysis. As such, visual impacts would occur on lands considered visually valuable (Type B) and/or lands whose visual quality is already at risk due to built modifications (Type C).

Construction

In the short term, vegetation clearing, grading, occupancy, facility construction, nighttime lighting, and revegetation of the Project phases would result in areas of disturbed soil surface, human activity, and dust would result in strong color, line, and texture contrast that would be prominent, especially when viewed from higher elevations. As aboveground facilities are installed in phases, short-term changes would likely be most pronounced in specific development areas. Additionally, short-term direct adverse effects also would include decommissioning activities following completion of the operating phase. The visual impacts from decommissioning activities would be similar to the construction-related impacts discussed above and viewers would experience similar short-term adverse visual effects during decommissioning as during construction.

These short-term adverse effects, together and individually, would represent a strong visual contrast as seen from key observation points (KOPs), historic and scenic trails, recreational use areas, and residential areas, and would not repeat the basic elements found in the predominant natural features of the characteristic landscape. When located within 1 mile of the viewer, or when viewed from an elevated position, construction activities would attract attention or dominate the view of the casual observer. These activities and facilities would be a major focus of viewer attention, and major modifications would occur to existing landscape character. All construction activities would result in direct adverse visual impacts. Adverse effects from construction activities would be reduced with implementation of MM-VIS-1 through MM-VIS-5 (see Section 4.11.3, Mitigation Measures). Implementation of this recommended mitigation would reduce short-term adverse effects.

Operations

Visual simulations of the Project (Alternative 1) are provided in Figures 6a through 6d of the Visual Impacts Analysis (see Appendix L). Contrast ratings found that wind turbines, combined with all other aboveground facilities, including the transmission line, substations, and O&M facility, would result in moderate to strong degrees of contrast with the existing environment. The angular, vertical forms and straight edges of the wind turbines would dominate the horizontal lines of the landscape as seen within the foreground–middle ground distance range. Proposed mitigation measures, as enumerated below and described in Appendix L, would reduce contrast in form, line, color, and texture changes; however, the size, geographic extent, and multiple facility types would not repeat the elements of form, line, color, and texture of the characteristic landscape.

Although the long-term disturbance surface footprint accounts for little of the Project Site, the visual impact of Alternative 1 occurs throughout the Project Site, as well as the larger visual resource affected environment. The number, size, and spatial extent of proposed components in the Project Site would be visible from large portions of the area and would dominate the landscape as seen from KOPs and other locations within the Project Area. While some natural to rural landscape characteristics of the Project Site would be partially retained, the majority would have a strong industrial component. In general, where visible outside of the alternative area for approximately 5 miles, Alternative 1 would dominate the view of the casual observer and would result in moderate to high levels of change in the landscape. Implementation of MM-VIS-2 through MM-VIS-7 (see Section 4.11.3) is recommended to mitigate the visual impact of wind turbines and all aboveground facilities to the greatest extent practicable, although unavoidable adverse effects would persist.

Alternative 2: Approximately 202 MW

The short-term adverse effects from construction to visual resources under Alternative 2 would be very similar to the adverse effects described under Alternative 1. Direct short-term effects to visual resources in the Project Area would be adverse; as such, implementation of MM-VIS-1 through MM VIS-5 (see Section 4.11.3) is recommended for Alternative 2. Implementation of mitigation would reduce short-term adverse effects.

Upon completion of Alternative 2, public and private lands would be indirectly impacted by views of wind turbines and other facilities located in the Project Area. Alternative 2 effects to existing visual quality and character are similar to the adverse effects described under Alternative 1. For the KOPs considered, there would be reduced contrast from Alternative 2 relative to Alternative 1. However, Alternative 2 would nonetheless result in a strong contrast and constitute a major modification of the existing character of the landscape. Impacts would be adverse. As such, implementation of MM-VIS-2 through MM-VIS-7 (see Section 4.11.3) is recommended. However, unavoidable adverse effects would persist.

No Action Alternative

Under the No Action Alternative, construction and operational activities related to the Project would not occur. As such, no adverse effects would occur related to incompatibility with existing character of the landscape.

Impact VIS-2 Would the Project have a substantial adverse effect on a scenic vista?

Alternative 1: Approximately 252 MW

Construction and Decommissioning

All surface-disturbing activities during construction would contribute to direct adverse visual impacts, as explained under Impact VIS-1. The scale of surface-disturbing construction activities and visibility from sensitive viewpoints (including historic and scenic trails, popular recreation sites, residential areas, and communities) over the construction and decommissioning periods would result in adverse short-term visual impacts. The effects to visual resources would be adverse in that construction activities would be visible from some sensitive viewpoints, including identified KOPs and points along County- and state-designated scenic highways (I-8, SR-94, and Old Highway 80).

Adverse effects on some sensitive viewpoints from construction and decommissioning activities would be reduced with implementation of MM-VIS-1 through MM-VIS-5. Implementation of this recommended mitigation would reduce short-term adverse effects on scenic vistas.

Operations

The large scale of individual wind turbines, coupled with the large number of wind turbines located in the Project Area, results in a high degree of visibility. Groups of wind turbines would be visible from many roadways, recreational use areas, communities, and residences in the area. The long-term visibility of Project components under Alternative 1 would result in adverse effects to scenic vistas from county and state-designated scenic highways. MM-VIS-4 and MM-VIS-5, discussed previously, would restore land contours of the turbine sites to the extent practicable, limiting the long-term adverse effect of landscape alteration. However, no mitigation is available to reduce the visibility of the Project components themselves. Additionally, the implementation of MM-VIS-6 and MM-VIS-7 would reduce adverse effects associated with the visibility of substation components, fencing, and transmission lines and poles. Because of the absence of feasible mitigation to reduce adverse effects to scenic vistas, operation of the Project would result in unavoidable adverse effects.

Alternative 2: Approximately 202 MW

Construction and Decommissioning

As Alternative 2 entails a reduced Project footprint compared to Alternative 1, overall ground disturbance and the volume of installed wind turbines on the Reservation would be reduced. However, overall visual effects

and visual change to the existing landscape resulting from implementation of Alternative 2 would be similar to the adverse effects that would occur under Alternative 1.

As with Alternative 1, adverse effects on some sensitive viewpoints from construction and decommissioning activities would be substantially reduced with implementation of MM-VIS-1 through MM-VIS-5, for the reasons discussed under Alternative 1. Implementation of mitigation would reduce short-term adverse effects to scenic vistas.

Operations

As with Alternative 1, the operation of Alternative 2 would result in adverse effects related to scenic vistas. As such, MM-VIS-2 through MM-VIS-7 (see Section 4.11.3) are recommended. Even with the implementation of mitigation, however, this effect would remain adverse and unavoidable.

No Action Alternative

Under the No Action Alternative, construction and operational activities related to the Project would not occur. As such, no scenic vistas would be impacted. No adverse effects would occur.

Impact VIS-3 Would the Project substantially alter the existing scenic quality of a Type A scenic landscape?

Alternative 1: Approximately 252 MW

There would be no adverse effects to Type A landscapes from implementation of Alternative 1, because Type A landscapes were not found in the Project Area, as discussed in Appendix L. Therefore, the Project would not result in adverse effects, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

There would be no adverse effects to Type A scenic landscapes from Alternative 2, because no Type A landscapes were inventoried in the Project Area.

No Action Alternative

Under the No Action Alternative, no adverse effects would occur related to the existing scenic quality of a landscape because there are no Type A scenic landscapes in the area.

Impact VIS-4 Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Alternative 1: Approximately 252 MW

Construction Lighting

Construction activities would occur during daylight and after daylight hours. The work area would be lit after dark with portable lighting powered by a diesel-fueled generator. Direct or indirect light sources would still be visible from specific KOPs. The degree of contrast associated with lighting depends on the proximity to KOPs (viewing distance), elevation of lighting relative to KOPs (most lighting would likely be located on wind turbine pads at higher elevations than viewers), the intensity of specific lighting sources, and the background or ambient level of combined nighttime lighting in the study area. Short-term impacts from the use of exterior lighting for safety and security during construction at Project facilities may contribute substantially to ambient after dark lighting conditions. However, given the anticipated duration of construction-related lighting, any impacts to scenic quality would be temporary. Over the duration of the construction phase, construction lighting would occur intermittently as cranes would be lit. Construction lighting impacts would not be adverse.

Operations Lighting

Upon implementation of the Project, new nighttime lighting sources would be added to the Project Site for Alternative 1. New sources of nighttime lighting at the collector substation would be kept to the minimum required to ensure adequate lighting for O&M staff to perform as-needed and/or emergency maintenance. Lighting would be installed at the On-Reservation O&M facility site near the parking area and on the O&M building exterior for safety/illumination purposes. The total amount of facility (i.e., non-wind turbine and meteorological tower) related lighting operating on the Project Site would be relatively low. Further, all facility related lighting would be hooded, directed downward, and turned off when not required. While the County has no land use jurisdiction over the Campo Wind Facilities, facility lighting installed at the Project would be fully compliant with the County Light Pollution Code. No adverse effects associated with nighttime lighting at facilities (i.e., collector substation and O&M facility) are anticipated.

Wind turbines and Met towers would exceed 200 feet above ground level, marking and lighting of these components would be required by the Federal Aviation Administration (FAA) to ensure the safety of aircraft pilots and the efficient use of navigable airspace. During evening, nighttime, and morning hours, FAA-compliant lighting installed atop Met towers and a portion of wind turbines could be visible throughout the viewshed. Due to the visibility of simultaneously flashing red obstruction lights and the general lack of bright night lighting installed On- and Off- Reservation to the south of I-8, the operation of obstruction lights would result in adverse effects to existing nighttime views. A lighting plan based on the Project final design would be prepared for the Project and would be subject to review by the FAA, as recommended by MM-VIS-8 (see Section 4.11.3). The FAA would make the final determination regarding the number, location, and type of lighting to be installed atop wind turbines. The FAA must first approve the lighting plan described in MM-VIS-8 before it can be implemented.

Glare

As proposed, Project wind turbines for Alternative 1 would be painted a standard off-white matted color to minimize glint and glare potential. With the exception of SR-94, roads in the Project Area tend not to be directly aligned or perpendicular to wind turbine locations. Wind turbines are proposed on a ridge to the west of SR-94 and would be aligned toward the roadway near Live Oak Spring Road. However, the presence of existing oak trees (*Quercus* spp.) in the area would generally block potential blade glint from the view of motorists. As such, effects from glare would not be adverse.

Alternative 2: Approximately 202 MW

Effects for Alternative 2 would be similar to the adverse effects described for Alternative 1. Alternative 2 would have an approximately 20% reduced overall footprint and fewer turbines than Alternative 1. With implementation of MM-VIS-8, no adverse effects are anticipated.

No Action Alternative

Under the No Action Alternative, construction and operational activities related to the Project would not occur. As such, no adverse effects would occur related to lighting and glare.

4.11.3 Mitigation Measures

Implementation of the following recommended mitigation measures would reduce visual resources effects from the Project:

MM-VIS-1 (Temporary Screening)

MM-VIS-2 (Activity Limits Signposting Guidelines)

MM-VIS-3 (Minimization of Views of Graded Terrain)

MM-VIS-4 (Revegetation of Disturbed Areas)

MM-VIS-5 (Minimization of Vegetation and Topsoil Removal)

MM-VIS-6 (Color Mitigation)

MM-VIS-7 (Conductor Design Requirements)

MM-VIS-8 (FAA-Approved Lighting System)

Full details of these mitigation measures are located in Appendix P.

4.11.4 Conclusions

Project Alternatives 1 and 2 would potentially result in adverse effects on visual resources, for which MM-VIS-1 through MM-VIS-7 would reduce but not eliminate adverse effects. The potential for adverse

effects on visual resources in general are attributable to the size of the wind turbine components described and their necessarily high point locations. The effects from the associated transmission line and substation facilities are similar to those predicted for the wind turbine components of the Project and can be reduced with mitigation; MM-VIS-6 and MM-VIS-7, are feasible measures for the associated transmission line and substation facilities. MM-VIS-8 would reduce lighting impacts for both Alternative 1 and Alternative 2. The alternatives' effects on visual resources would result in an unavoidable and adverse effect.

Under the No Action Alternative, construction and operational activities related to the Project would not occur. As such, no adverse effects would occur.

4.12 PUBLIC HEALTH AND SAFETY

This section discusses potential effects on public health and safety due to exposure to or creation of hazards that may occur with implementation of the Project alternatives. The discussion presents criteria used to identify and analyze effects, potential adverse effects, and recommended mitigation measures. The discussion is based in part on a Preliminary Environmental Site Assessment (Preliminary ESA) for the Reservation, which was prepared to assess existing potential hazards and hazardous materials in the Project Area and is included as Appendix M-1 to this EIS, as well as a Phase 1 ESA prepared for private lands through which the Boulder Brush Facilities extend, included as Appendix M-2 to this EIS. Collectively, these are referred to as "Project ESAs" in this EIS.

4.12.1 Impact Indicators

The Project alternatives would be considered to have an adverse effect on public health and safety if found to:

- Use, store, or dispose of petroleum products and/or hazardous materials in a manner that results in a release to the aquatic or terrestrial environment in an amount equal to or greater than the reportable quantity for that material or creates a substantial risk to human health.
- Mobilize contaminants currently existing in the soil or groundwater, creating potential pathways of exposure to humans or wildlife that would result in exposure to contaminants at levels that would be expected to be harmful.
- Expose workers to contaminated or hazardous materials at levels in excess of those permitted by the federal Occupational Safety and Health Administration (OSHA) in 29 CFR 1910, or expose members of the public to direct or indirect contact with hazardous materials from the Project's construction or operations.
- Expose people residing or working in the Project Area or structures to safety hazards.
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.
- Emit hazardous emissions or involve handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.

- Result in a safety hazard for people residing or working in the Project Area within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, or within the vicinity of a private airstrip.
- Create any undue risks due to the breaking of a rotor blade.
- Create any undue risks due to the potential collapse of a wind turbine.

4.12.2 Effects

Summary Table
Public Health and Safety Effects and Mitigation

Impact Number	Effect	Mitigation
Alternative 1: Approximately 252 MW		
Impact PH&S-1	Adverse effects of hazardous materials release during construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-2	Adverse effects from exposure to mobilized contaminants existing in the soil or groundwater during construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-3	Adverse effects to workers from exposure to contaminated or hazardous materials from the Project's construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-4	Adverse effects related to exposure of people or structures to safety hazards	MM-PH&S-2 and MM-PH&S-3
Impact PH&S-5	Adverse effects of fire risk during construction, operation (failures), and decommissioning	MM-PH&S-2, MM-PH&S-4, and MM-BIO-1(g)
Impact PH&S-6	No adverse effects	None
Impact PH&S-7	No adverse effects	None
Impact PH&S-8	Adverse effects of undue risk related to the breaking of a rotor blade	MM-PH&S-2 and MM-PH&S-4
Impact PH&S-9	Adverse effects of undue risk of potential collapse of a wind turbine	MM-PH&S-4
Alternative 2: Approximately 202 MW		
Impact PH&S-1	Adverse effects of hazardous materials release during construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-2	Adverse effects from exposure to mobilized contaminants existing in the soil or groundwater during construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-3	Adverse effects to workers from exposure to contaminated or hazardous materials from the Project's construction	MM-PH&S-1 and MM-PH&S-2
Impact PH&S-4	Adverse effects related to exposure of people or structures to safety hazards	MM-PH&S-2 and MM-PH&S-3
Impact PH&S-5	Adverse effects of fire risk during construction, operation (failures), and decommissioning	MM-PH&S-2, MM-PH&S-4, and MM-BIO-1(g)
Impact PH&S-6	No adverse effects	None
Impact PH&S-7	No adverse effects	None
Impact PH&S-8	Adverse effects of undue risk related to the breaking of a rotor blade	MM-PH&S-2 and MM-PH&S-4
Impact PH&S-9	Adverse effects of undue risk of potential collapse of a wind turbine	MM-PH&S-4

Summary Table
Public Health and Safety Effects and Mitigation

Impact Number	Effect	Mitigation
No Action Alternative		
Impact PH&S-1	No adverse effects	None
Impact PH&S-2	No adverse effects	None
Impact PH&S-3	No adverse effects	None
Impact PH&S-4	No adverse effects	None
Impact PH&S-5	No adverse effects	None
Impact PH&S-6	No adverse effects	None
Impact PH&S-7	No adverse effects	None
Impact PH&S-8	No adverse effects	None
Impact PH&S-9	No adverse effects	None

Impact PH&S-1 Would the Project use, store, or dispose of petroleum products and/or hazardous materials in a manner that results in a release to the aquatic or terrestrial environment in an amount equal to or greater than the reportable quantity for that material or creates a substantial risk to human health?

Alternative 1: Approximately 252 MW

Construction and decommissioning of Alternative 1 would entail the use, transport, and storage of hazardous materials including vehicle and equipment maintenance fuels, lubricating oils, grease, solvents, hydraulic fluid, and coolant. Although the use of hazardous materials for their intended purpose would not pose a significant risk to the public or environment, accidental spills or unauthorized releases of hazardous materials during construction could result in soil contamination and the potential exposure of workers and/or the public to contamination. Operation of the Project would also include the use and storage of limited quantities of off-the-shelf substances including lubricants, oils, solvents, hydraulic fluid and coolant, which would be used to maintain the on-site equipment and facilities. Storage and handling of any such materials would be undertaken in accordance with all applicable regulations. Accidental spills and unauthorized releases of hazardous materials are possible and could result in adverse effects. Implementation of recommended MM-PH&S-1 (Hazardous Materials Management Plan) and MM-PH&S-2 (Health and Safety Program) (see Section 4.12.3, Mitigation Measures) would reduce such effects to less than adverse.

Alternative 2: Approximately 202 MW

Similar to Alternative 1, Alternative 2 would entail potential adverse effects associated with the use, transport, and storage of hazardous materials during construction, operation, and decommissioning. Implementation of recommended MM-PH&S-1 and MM-PH&S-2 would reduce these impacts.

No Action Alternative

Under the No Action Alternative, no construction or operation would occur; therefore, there would be no potential use of hazardous materials and no potential risk to human health or safety. Thus, no adverse effects would occur.

Impact PH&S-2 Would the Project mobilize contaminants currently existing in the soil or groundwater, creating potential pathways of exposure to humans or wildlife that would result in exposure to contaminants at levels that would be expected to be harmful?

Alternative 1: Approximately 252 MW

As part of the Preliminary ESA (Appendix M-1), a hazardous materials database search was conducted to identify potentially hazardous recognized environmental conditions (RECs) on the Project Site. The Preliminary ESA did not identify the presence of RECs on the Project Site, although it did identify RECs on various sites adjoining the Project Site, as listed in Appendix M-1. Although construction is not currently proposed on any sites identified as having a REC, the exact geographic footprint of the Project Site is subject to change depending on geotechnical constraints. The Project Site crosses BIA Road 10 (Church Road) approximately 0.1 miles from the Campo Materials site, which is the nearest identified REC to the Project Site. Construction that occurs in the vicinity of a potential REC could mobilize contaminants currently existing in the soil or groundwater, creating potential pathways of exposure to humans or wildlife that would result in exposure to contaminants at levels that would be expected to be harmful. These conditions would result in potentially adverse effects. Operations would not be expected to create potential pathways for existing RECs. If the design of the Project changes, resulting in construction on a new, un-analyzed Project Site, implementation of recommended MM-PH&S-1 and MM-PH&S-2 (see Section 4.12.3) would avoid an adverse effect on public health and safety.

Alternative 2: Approximately 202 MW

Alternative 2 poses the same potential to mobilize contaminants currently existing in the soil or groundwater as Alternative 1 and would result in similar adverse effects. Therefore, implementation of recommended MM-PH&S-1 and MM-PH&S-2 would avoid adverse effects.

No Action Alternative

Under the No Action Alternative, no construction or operation would occur; therefore, there would be no potential to expose humans or wildlife to harmful contaminants. Thus, no adverse effects would occur.

Impact PH&S-3 Would the Project expose workers to contaminated or hazardous materials at levels in excess of those permitted by the Federal Occupational Safety and Health Administration (OSHA) in 29 CFR 1910, or expose members of the public to direct or indirect contact with hazardous materials from the proposed Project's construction or operations?

Alternative 1: Approximately 252 MW

Construction, operations, and decommissioning activities associated with Alternative 1 could temporarily expose workers and/or members of the public to direct or indirect contact with hazardous materials used for cleaning and lubrication. Workers who handle hazardous materials are required under OSHA regulations to have a certain minimum level of training. If improper handling occurred, workers could be exposed to hazardous materials above permitted levels. Implementation of recommended MM-PH&S-1 (see Section 4.12.3) would require all employees and contract staff to adhere to the appropriate health and safety plans and emergency response plans that meet industry standards.

Implementation of recommended MM-PH&S-2 would reduce the likelihood of exposure of workers or the public to potentially hazardous materials. Implementation of recommended MM-PH&S-1 would reduce these effects to less than adverse.

Alternative 2: Approximately 202 MW

Impacts associated with the exposure of workers or the public to direct or indirect contact with hazardous materials during construction, operational, and decommissioning activities under Alternative 2 would be similar to those associated with Alternative 1. Similar to Alternative 1, implementation of recommended MM-PH&S-1 and MM-PH&S-2 would reduce any adverse impacts.

No Action Alternative

Under the No Action Alternative, no construction or operation would occur and there would be no potential use of hazardous materials and no potential risk of exposure of workers or the public to direct or indirect contact with hazardous materials. Thus, no adverse effects would occur.

Impact PH&S-4 Would the Project expose people residing or working in the proposed Project area or structures to safety hazards?

Alternative 1: Approximately 252 MW

Construction and operations, as well as decommissioning activities associated with Alternative 1, could expose residents or workers in the Project Area to safety hazards during construction and operational activities. All workers on the Project Site would be subject to OSHA safety regulations and standards stated in the Occupational Safety and Health Act of 1970, compliance with which must be ensured by the developer's contractor(s). Potential safety issues include site access, construction, security, heavy equipment transportation, traffic management, emergency procedures, and fire control. Unauthorized public access to the Project Site may result in injuries or hazardous conditions for workers and the general public in the form of accidental spills and releases of hazardous materials. These conditions could result in adverse effects. Implementation of recommended MM-PH&S-2 and MM-PH&S-3 (Safety Assessment) (see Section 4.12.3) would reduce impacts related to safety hazards during construction, operation, and decommissioning.

Alternative 2: Approximately 202 MW

Impacts associated with exposure of residents or workers in the Project Area to safety hazards during construction, operational, and decommissioning activities under Alternative 2 would be similar to those associated with Alternative 1. Similar to Alternative 1, implementation of recommended MM-PH&S-2 and MM-PH&S-3 would reduce impacts related to safety hazards during construction, operation, and decommissioning..

No Action Alternative

Under the No Action Alternative, no construction or operation would occur; therefore, there would be no potential for exposure of residents or workers in the study area to safety hazards. Thus, no adverse effects would occur.

Impact PH&S-5 Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires?

Alternative 1: Approximately 252 MW

Alternative 1 would increase the potential for a wildfire and could impact the public and the environment by exposure to wildfire due to construction and decommissioning activities and ground disturbance with heavy construction equipment. The risk of wildfire would be related to combustion of native plants caused by refueling and operating vehicles and other off-road equipment.

Alternative 1 is not expected to result in adverse public health and safety effects with the implementation of standard fire prevention procedures, such as fire management zones, regular inspections, and routine mechanical maintenance. Additionally, water distribution systems are available throughout the Project Area and could be used for firefighting. Water could be collected by water tank trucks from On-Reservation sources including groundwater wells in the southeastern portion of the Reservation.

To ensure adequate response to the threat of wildfire during construction, operation, and decommissioning activities, the developer and contractor would be responsible for developing and implementing a Fire Protection Plan that would reduce direct and indirect adverse effects associated with fire hazards under Alternative 1. Implementation of recommended MM-PH&S-2 and MM-PH&S-4 (Wind Turbine Safety Zone and Setbacks) would minimize impacts related to safety hazards during construction, operation, and decommissioning. In addition, MM-BIO-2(g) (Fire Protection (see Section 4.5, Biological Resources), if implemented, would to prevent nonnative, weedy plants from establishing in the disturbed areas that would occur during construction activities. The mitigation measure, if implemented, would also ensure that disturbed areas that would be included in the long-term maintenance of the fire management zones would not be revegetated, specifying that any plants that establish in these areas be removed on an ongoing (i.e., annual) basis. The Project would increase the risk of wildfires. However, implementation of recommended MM-PH&S-2, MM-PH&S-4, and MM-BIO-2(g) would reduce these adverse effects.

Alternative 2: Approximately 202 MW

Effects associated with fire hazards in the Project Area during construction, operation, and decommissioning activities under Alternative 2 would be similar to the adverse effects associated with Alternative 1. Similar to Alternative 1, implementation of recommended MM-PH&S-2, MM-PH&S-4, and MM-BIO-2(g) would reduce these effects to less than adverse.

No Action Alternative

Under the No Action Alternative, no construction or operation would occur; therefore, there would be no potential for fire hazards associated with the proposed Project alternatives. Thus, no adverse effects would occur.

Impact PH&S-6 Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school?

Alternative 1: Approximately 252 MW

An existing preschool is located approximately 500 feet north of a Project access road, and approximately 0.40 miles away from a Project turbine. Construction of proposed access roads would comply with all regulations governing the handling of hazardous materials, such as diesel, and would have no adverse effects on the existing school. Given that the proposed wind turbines are not located within 0.25 miles of an existing or proposed school, Alternative 1 would not have the potential to emit hazardous emissions or involve the handling of hazardous materials, substances, or wastes within 0.25 miles of an existing school. Additionally, the Tribe does not have any current or future plans to develop new schools on the Reservation at this time. Thus, no adverse effects on the existing preschool were identified, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Effects associated with the potential to emit hazardous emissions and involve the handling of hazardous materials near a school during construction under Alternative 2 would be similar to the adverse effects associated with Alternative 1. Thus, no adverse effects on the existing preschool were identified, and no mitigation is recommended.

No Action Alternative

Under the No Action Alternative, no construction or operation would occur; therefore, there would be no potential were identified effects on the preschool from hazardous emissions and the handling of hazardous materials. Thus, no adverse effects would occur.

Impact PH&S-7 Would the Project result in a safety hazard for people residing or working in the Project area within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip?

Alternative 1: Approximately 252 MW

Alternative 1 would not result in a safety hazard during construction, operation or decommissioning of the Project for people residing or working in the Project Area within 2 miles of a public airport/public use airport, because the nearest public airport (Jacumba Airport) is 15 miles southwest of the Project Area. Thus, no adverse effects are identified, and no mitigation is recommended.

In addition, the Reservation is located approximately 2 miles west of a former private airstrip on Rough Acres Ranch. However, the landowner quitclaimed the right to service the property with fixed-wing aircraft via an aviation restriction/easement (County of San Diego 2015). Therefore, Alternative 1 would not result in a safety hazard for people residing or working in the Project Area within the vicinity of a private airstrip. As such, no adverse effects were identified, and no mitigation is recommended.

Alternative 2: Approximately 202 MW

Similar to Alternative 1, no adverse effects are anticipated with regard to airport and airstrip hazards during construction, operations, or decommissioning activities under Alternative 2.

No Action Alternative

Under the No Action Alternative, no construction, operation or decommissioning would occur. Thus, no adverse effects would occur associated with airport and airstrip hazards during construction, operations, and decommissioning activities.

Impact PH&S-8 Would the Project create any undue risks due to the breaking of a rotor blade?

Alternative 1: Approximately 252 MW

A primary safety hazard that may occur during operation of a wind turbine project is breaking of a rotor blade, typically referred to as a "blade throw." The breaking of a rotor blade or similar damage may occur as a result of overspeed of the rotor, although such an occurrence typically happens with older and smaller turbines, as these older turbine designs used lighter blades and rotated at much higher speeds compared to modern designs. Modern turbine designs employ fail-safe, redundant braking mechanisms, slower rotational speed, and heavier blades, all of which greatly reduce this potential safety hazard.

Alternative 1 would implement the latest in modern wind turbine technology, which includes a safety system to ensure that the wind turbines shut down immediately at the onset of mechanical disorders, including abnormal vibrations, overspeed, grid electrical disorders, or loss of grid power. The turbines are protected by two independent brake systems: an aerodynamic brake affected by blade pitch control, and a

mechanical brake. Turbines are designed to operate in wind speeds up to approximately 56 mph, referred to as the *cut-out speed*. At wind speeds above 56 mph, blades rotate parallel to the wind (blades are fully feathered) and the wind turbine stops producing electricity. The braking system is linked to the wind turbine control system to be used to prevent overspeeding of the rotor. Turbines can typically withstand sustained wind speeds of more than 100 mph.

Wind turbine locations would be consistent with Section 303 of the Land Use Code, which requires a minimum setback of 0.25 miles from any existing structure, including residential structures, as required by the Campo Lease.

The proposed turbines would be state-of-the-art models, made from a glass-reinforced polyester composite similar to that used in the marine industry for sophisticated racing hulls. Fully enclosed tubular conical steel towers would support the turbines. The foundations would be steel-reinforced concrete and would use either spread footings or rock anchors, depending on existing soil conditions. Towers would be painted off-white for aviation visibility and to provide corrosion protection, extending the life of turbine components and preventing breakage. Engineering design and quality control have improved significantly with advances in technology, and the occurrence of rotor blade breakage is highly unlikely. A turbine rotor and the nacelle (which includes the electrical generator) would be mounted on top of each turbine tower, for a tower hub height of up to 374 feet. Computer systems would be installed in each turbine and would routinely perform self-diagnostic tests. The systems would also allow a remote operator to set new operating parameters, perform system checks, and ensure that turbines are operating at peak performance.

As stated in Section 2.2.1 of this EIS, the Project wind turbines would meet the Tribe's established 0.25-mile setback requirement, which applies to all occupied Tribal residences. Implementation of recommended MM-PH&S-2 and MM-PH&S-4 would provide adequate safety zones and would reduce effects to less than adverse.

Alternative 2: Approximately 202 MW

Effects associated with rotor blade breakage under Alternative 2 would be similar to the adverse effects associated with Alternative 1, although slightly lesser due to the reduced number of turbines. Similar to Alternative 1, implementation of recommended MM-PH&S-2 and MM-PH&S-4 would reduce effects to less than adverse.

No Action Alternative

Under the No Action Alternative, no construction would occur; therefore, there would be no potential for rotor blade breakage. Thus, no adverse effects would occur.

Impact PH&S-9 Would the Project create any undue risks due to the potential collapse of a wind turbine?

Alternative 1: Approximately 252 MW

Tower collapse is extremely unlikely because the towers and foundations would be designed to withstand extreme earthshaking, 100-year flood erosion, and high winds. The foundations for the steel tubular towers supporting the turbines would be steel-reinforced concrete and would use either spread footings or rock anchors, depending on existing soil conditions.

In the unlikely event that there would be a tower collapse, implementation of recommended MM-PH&S-4 would entail sufficient safety zones and setbacks from any residences, buildings, structures, roads, transmission lines, and other public access areas where there may be risk or hazard from a tower collapse (MM-PH&S-4) (see Section 4.12.3).

With implementation of recommended MM-PH&S-4, effects associated with the potential collapse of wind turbines would be reduced to less than adverse.

Alternative 2: Approximately 202 MW

Impacts associated with tower collapse with Alternative 2 would be similar to those associated with Alternative 1, although slightly lesser due to the reduced number of turbines. Similar to Alternative 1, MM-PH&S-4 would be recommended. With implementation of MM-PH&S-4, effects associated with the potential collapse of wind turbines would not be reduced to less than adverse.

No Action Alternative

Under the No Action Alternative, no construction, operation or decommissioning would occur; therefore, there would be no potential for tower collapse. Thus, no adverse effects would occur.

4.12.3 Mitigation Measures

The following recommended mitigation measures would reduce adverse effects on public health and safety from the Project:

MM-PH&S-1 (Hazardous Materials Management Plan)

MM-PH&S-2 (Health and Safety Program)

MM-PH&S-3 (Safety Assessment)

MM-PH&S-4 (Wind Turbine Safety Zone and Setbacks)

In addition, the following mitigation measure for biological resources would also reduce adverse public health and safety effects:

MM-BIO-2(g) (Fire Protection)

Full details of these mitigation measures are located in Appendix P.

4.12.4 Conclusions

The Project alternatives would potentially result in adverse effects on public health. The potential for adverse effects on public health and safety in general is attributable to construction and decommissioning activities and operational failures. If implemented, recommended mitigation measures MM-PH&S-1 through MM-PH&S-4 and MM-BIO-2(g) would reduce these potential effects to less than adverse .

4.13 OTHER ISSUES DISCUSSED IN THIS EIS

This section analyzes potential impacts associated with the Project with respect to wind production tax credits, wind flow and downwind effects, electromagnetic fields (EMFs), and shadow flicker within the Project Area. These issues were identified during the previous public scoping.

4.13.1 Wind Production Tax Credit

As discussed in Section 3.13, Other Issues Discussed in This EIS, wind production tax credits are part of the Energy Policy Act. The wind production tax credit provides a 2.1 cent per kilowatt-hour benefit for the first 10 years of a facility's operation.

4.13.2 Wind Flow and Downwind Effects

The issue of wind flow and downwind effects has been and will continue to be a topic of discussion and research for both the public and for scientists in order to better understand the potential local and global consequences of wind turbines as an alternative energy source on the overall atmosphere. Research shows the importance of understanding how gusts and changes in wind flows can affect wind turbine operations and how turbine "wakes" move within and throughout the atmosphere. As technology and knowledge becomes available, the evolution of wind turbine design may reflect increase deficiency potentially reducing sizes or increasing per turbine megawatt output capacity that could affect the footprint of wind projects in the future. Based on available research, the Project alternatives analyzed in this EIS are not expected to result in adverse wind flow and downwind effects, and no mitigation is recommended.

4.13.3 Electric and Magnetic Fields

The Project includes the types of facilities that are often associated with the emitting of EMFs. It is unknown at this time what levels, if any, of EMFs would be associated with the proposed wind turbines, transmission lines, switchyard and substation, and other Project components. Several studies have been conducted regarding potential public health risks from exposure to EMFs; however, as discussed in

Section 3.13, much of the research remains contradictory or inconclusive. As stated in Section 3.13, the CPUC concluded that it was unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences (CPUC 2019).

Many facilities associated with the Project would be buried underground and would not have the potential to emit EMFs.

Despite the lack of conclusive science linking EMFs from electrical facilities to adverse human health effects, a main concern voiced by the public regarding EMFs is a source's proximity to sensitive receptors. The nearest sensitive receptors include two existing Tribal residences located within approximately 0.25 miles to the north of the Project's proposed 230 kV circuit and eight Tribal residences located within approximately 0.25 miles to the west of the proposed 230 kV circuit. No empirical evidence exists on the adverse health effects of EMF exposure and no adverse health effects are anticipated to occur as a result of implementation of the Project; therefore, no mitigation is recommended.

The Campo Lease requires implementation of certain setbacks for turbines from residences on the Reservation. The turbines would therefore be constructed and operated with at least a 0.25-mile required setback from any existing residential building. No adverse effects would occur with respect to EMFs as a result of implementation of the Project, and no mitigation is recommended.

4.13.4 Shadow Flicker

Shadow flicker effects from wind turbines are anticipated to be minimal due to the limited time of potential hours of flicker (less than 30 per year), and the distance from turbines to sensitive receptors, including residences, and public meeting areas such as parks, retail, and sporting events, and the presence of varied terrain and vegetation that further limits the times and locations shadow flicker may be experienced.

As stated in Section 3.13, shadow flicker can be avoided by using computer programming to shut turbines off during potential shadow flicker times. This shadow flicker phenomenon occurs up to 30 total hours per year for wind turbines. No adverse effects are anticipated with respect to shadow flicker; however, to avoid shadow flicker, all turbine software would include programming to reduce or shut off turbines during times of shadow flicker potential to avoid any concerns regarding adverse effects on nearby receptors due to flicker from turbine blades.

4.14 CUMULATIVE SCENARIO AND IMPACTS

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of a project. In accordance with NEPA, this section analyzes cumulative impacts of the Project in combination with other developments that affect or could affect the area.

NEPA defines a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

4.14.1 Cumulative Projects

For this cumulative analysis, a geographic scope for each issue area was determined. The geographic scope can be different for each cumulative effects issue. Often, a resource is not limited by jurisdictional boundaries; rather, the resource extends across a natural area of influence, such as an air basin, watershed, or habitat community. Each resource study area is generally based on the appropriate natural boundaries of the resource affected, rather than jurisdictional limits. Additionally, the geographic scope of cumulative effects often extends beyond the scope of the direct project effects identified for the topic area.

To perform the cumulative impacts analysis, a cumulative project list was developed that identifies projects within the vicinity of the Project that are reasonably foreseeable or are ongoing and could have effects, either direct or indirect, that could collectively combine with effects of the Project to create an adverse impact. To be considered reasonably foreseeable, projects do not need to be fully funded or approved, but they must not be speculative.

The list of cumulative projects was developed through consultation with the Tribe and BIA based on their knowledge of other projects in the area. Additionally, projects were identified through review of existing environmental documents for projects in the area as well as consultation with the County of San Diego for projects within their jurisdiction. Projects constructed prior to the release of the Notice of Intent are included in the baseline and are not listed as cumulative projects.

More detail regarding cumulative projects can be found in Table 1 of Appendix N.

4.14.2 Cumulative Impact Analysis

This section presents the results of an analysis of the potential for the Project, when considered in combination with the projects listed in Appendix N, to create cumulatively considerable impacts. That detailed cumulative impact analysis for each of the resource issues is included in Appendix N to this EIS. The table below provides a brief summary of the cumulative impacts identified.

Summary Table
Cumulative Impacts

Cumulative Impacts Analysis			
Resource	*Potential Direct Cumulative Impacts*	*Potential Indirect Cumulative Impacts*	*Would Potential Cumulative Impacts Be Adverse?*
Land Resources	• Alterations to natural topography • Interference with mineral extraction operations • Erosion • Damage, alteration or destruction of paleontological resources	• Facility damage from earthquake-related ground shaking, liquefaction, landslides, expansive soils, and general soil suitability.	No – adherence to state and federal regulatory framework for erosion control and structure development would reduce adverse impacts to land resources. The Project would not be located in an area of paleontological potential or sensitivity, or within proximity of a mineral extraction operation; therefore the Project would not contribute to an adverse cumulative impact to mineral or paleontological resources.
Water Resources	• Discharge of pollutants or stormwater into waters of the United States • Construction of access roads across drainage feathers • Decline in groundwater levels	• Increase sedimentation of downstream surface water flows resulting from ground disturbance and erosion	No – adherence to state and federal regulatory framework for erosion control and limits on groundwater draw down would reduce adverse cumulative impacts to water resources.
Air Quality	• Maximum daily construction emissions would exceed construction thresholds for NO_x, CO, PM_{10}, and $PM_{2.5}$	• None foreseeable	No – not significant by federal NAAQS standards.
Biological	• Direct loss of special-status plant or wildlife species, resulting in reduction of distribution and population size • Loss of suitable habitat • Wildlife behavior modifications and area avoidance due to construction noise and increased human presence. • Barriers or constraints to wildlife movement	• Introduction and spread of invasive, non-native, or noxious plant species • Degradation of vegetation from fugitive dust • Changes in wildlife habitat usage would potentially affect species fitness and productivity.	Yes – mitigation recommended.
GHG Emissions and Climate Change	• Increased GHG emissions during construction / operations	• Reduction of GHG emissions over time by providing increased renewable energy	No – the Project would have a net positive impact on GHG emissions, and would not have a cumulative impact to GHG emissions and climate change.
Cultural Resources	• Damage, alteration or destruction of historic properties	• None foreseeable	No – the Project would be designed to avoid identified significant cultural resources; therefore the Project would not have a cumulative impact to cultural resources.
Socioeconomics	• Increased temporary construction and decommissioning jobs	• None foreseeable	No – construction and decommissioning are temporary activities, therefore the Project

Summary Table
Cumulative Impacts

Cumulative Impacts Analysis			
Resource	*Potential Direct Cumulative Impacts*	*Potential Indirect Cumulative Impacts*	*Would Potential Cumulative Impacts Be Adverse?*
	• Environmental justice		would not significantly impact local demographics or economic status. Yes – significant unavoidable impacts from construction noise and operations visual affects affecting the low-income community.
Resource Use Patterns	• Decreased land for agriculture and cattle grazing • Temporary closure of off-road motocross area	• None foreseeable	No – lands would still be available for grazing throughout the analysis area.
Traffic and Transportation	• Increased traffic during peak traffic hours • Construction vehicles and equipment utilizing local transportation system	• Increase road hazards due to higher volume of traffic and construction vehicles	Yes – mitigation recommended.
Noise	• Increased ambient noise levels from operations • Temporarily increase ambient noise levels from construction	• None foreseeable	Yes – unavoidable operation, construction mitigation recommended.
Visual Resources	• Obstruction of scenic vistas • Decreased visual character and quality of the Interstate's viewshed • Diminish intactness and unity of the landscape	• None foreseeable	Yes – unavoidable.
Public Health and Safety	• Increased risk of contamination by hazardous materials • Increased risk of airport hazards	• Increased risk of wildfire due to increased ignition sources during construction, operations and maintenance, and decommission	No – the use of BMPs would reduce the risk of hazardous spills and the Project would not be located near an airport. A Fire Protection Plan will be required

CHAPTER 5
OTHER NEPA CONSIDERATIONS

The NEPA (42 USC, Section 4371 et seq.), Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500–1508), and the BIA NEPA Guidebook (59 IAM 3_H: August 2012) require that an EIS address additional considerations, including those listed below:

- Any adverse effect that cannot be avoided

- The relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity
- Any irreversible and irretrievable commitment of resources
- Possible conflicts between the proposed action and the objectives of federal, tribal, regional, state, and local land use plans, policies, and controls for the area(s) of concern
- Energy requirements and conservation potential of alternatives and mitigation measures
- Natural or depletable resource requirements and conservation potential of alternatives and mitigation measures
- The design of the built (human-made infrastructure) environment, including the reuse and conservation potential of alternatives and mitigation measures

This chapter fulfills those requirements.

5.1 ANY ADVERSE EFFECT THAT CANNOT BE AVOIDED

The summary table below lists those impacts found to have adverse and unavoidable effects that cannot be avoided or reduced through project design or implementation of mitigation measures (see Appendix P to this EIS for the full text of all recommended mitigation measures).

Summary Table
Adverse Unavoidable Effects

Impact Number	Description of Impact	Mitigation	Effect after Mitigation
NOI	Turbines less than ¼ mile for Off-Reservation residences could have an unavoidable adverse effect to noise	None	Remains adverse and unavoidable
VIS-1 and VIS-2	Each of the build alternatives could have an unavoidable adverse effect on a scenic vista	MM-VIS-1 through MM-VIS-7	Remains adverse and unavoidable
SOCIO-4	Environmental Justice impacts as minority/low-income community is subjected to adverse visual effects	MM-VIS-1 through MM-VIS-7	Remains adverse and unavoidable

5.2 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA requires consideration of the relationship between short-term uses of the environment and long-term productivity associated with a project. For the purposes of the following discussion, *short-term* refers to the duration of construction of the Project and *long-term* means from the end of construction to decommissioning of the Project.

Project implementation would result in attainment of favorable energy and economic objectives at the expense of short-term impacts to aesthetics, air quality, biological resources, and noise. Short-term benefits would include increased job creation and increased local revenue generated during construction.

Long-term operations and maintenance (O&M) would result in the enduring loss of some biological resources. Long-term benefits would include the use of wind energy, a renewable resource to provide a nonpolluting source of electricity to meet forecasted energy demands, reduction of fossil fuel demands and carbon output due to energy generation, a potential reduction of GHGs associated with regional energy production, and betterment of the economic conditions of the Tribe through the economic terms of the Campo Lease and job creation. While irreversible and irretrievable commitments of some resources would occur, as described in Section 5.3, there would be no permanent loss of the overall productivity of the environment due to the Project. After the up-to-38-year operational life of the Campo Wind Project (25-year lease with a potential 13-year extension), the land would be returned to its previous condition and resources restored to its original condition (e.g., no noise generation, visual elements removed, and recovery of biological resources).

5.3 ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(c)(v) of NEPA requires that an EIS identify "any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." An irreversible and irretrievable commitment occurs when direct and indirect impacts from the use of a particular resource would limit or discontinue future use options. Irreversible commitments apply to nonrenewable resources and irretrievable commitments apply to resources that are neither renewable nor recoverable.

An irreversible and irretrievable commitment of resources would occur if the Project were approved. Implementation of the Project would involve the commitment of a range of natural, physical, human, and fiscal resources. The commitment of these irretrievable resources for the Project alternatives would vary in degree and amount but are generally similar. These commitments are integral to the nature of the Project, and their consumption is considered a necessary tradeoff to achieve the purpose of the Project and realize the benefits to the immediate area, region, and state from the clean and renewable energy source that would help meet future energy demands.

Implementation of the Project would require a permanent commitment of natural resources resulting from the direct consumption of fossil fuels and construction materials. The consumption of resources to develop the Project could include iron, steel, concrete, fossil fuels, aggregate, and timber, among others. Where feasible, these materials would be reused or recycled at the end of the Project's operational lifespan during decommissioning. For example, components of the turbines could be refurbished and resold or recycled as scrap material.

Energy would be required for the production of materials and transport of Project equipment. Human time and labor would be required throughout the construction of the Project as well as for long-term maintenance and operation activities.

Land used in the construction and operation of the Project is considered an irretrievable commitment during the time period that the land would be used for a wind energy facility. Future uses on lands surrounding the Project may also be restricted. Additionally, once decommissioned, the area would be returned to its prior state and would be available for other uses. Land would then again be available for uses such as agriculture or recreation. Because of the temporary nature of the lease agreement and requirement for a decommissioning plan, the commitment of resource use patterns over the long term (beyond the 25- to 38-year lifespan of the Project) would not be irretrievable or irreversible.

Water on the Reservation is provided by groundwater. The majority of the Reservation is within the designated boundaries of the Campo–Cottonwood Sole Source Aquifer. Water demand for construction would vary based on construction activities and would total over 173 AF throughout the construction period. During operations, water demand would be reduced to approximately 210 gallons per day for the sanitary functions associated with the O&M facility and any landscaping components and would typically be the same for all build alternatives. The use of this volume of water necessary for construction would be an irretrievable and irreversible commitment of part of the local groundwater supply; however, the water use would be temporary and would cease with completion of the Project. The projected water use of the Project is within the calculated safe yield of the aquifer, which is a renewable resource.

Construction of the Project would necessitate the removal of certain sensitive vegetation communities and habitats. However, mitigation requirements would equal the balance of the impacts and, in some cases, preserve or create habitats at a higher ratio to ensure no net loss of the habitat type. The Project would potentially, but not likely, result in the incidental take of some birds during Project operation. Additionally, once decommissioned, the Campo Wind Facilities and gen-tie (both portions within Campo Wind facilities and Boulder Brush Facilities) areas would be reconditioned to its previous state and biological function would likely return to prior conditions.

Cultural sites are unique and not renewable; once destroyed or compromised, the information and cultural value of the sites are unrecoverable and irretrievable. As described in Section 4.6, Cultural Resources multiple cultural resources sites are located within the area of potential effects that could be impacted by construction of the Project. However, there are mitigation measures to avoid and minimize disturbance of cultural resource sites; these mitigation measures would reduce the potential for irreversible and irretrievable commitment of cultural resources. The Project design has been, and would continue to be, modified in consultation with the BIA and the Tribe to avoid known or discovered significant cultural resources. The Project would not likely result in an irreversible and irretrievable commitment of cultural resources, and the likelihood of accidental damage during construction is minimized with implementation of the mitigation and monitoring measures described in Section 4.6.

Development of the Project would change the aesthetic environment and character of the Project Site, the Reservation, and surrounding area for the long term. Some views would be transformed from predominantly natural or rural community settings to landscapes with highly industrial components for the life of the Project. This is considered an irretrievable commitment of the visual resources of the area for the operational life of the Project. However, decommissioning of the Project in approximately 25 to 38 years would restore the overall visual character of the area as all visible components of the Project would be removed and the land restored to previous conditions.

5.4 POSSIBLE CONFLICTS BETWEEN THE PROPOSED ACTION AND THE OBJECTIVES OF FEDERAL, TRIBAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AREA(S) OF CONCERN

The Project would occur on lands under the jurisdiction of the BIA. Land uses on the Reservation are governed by the Land Use Code and the CEPA statutes. Under the Campo Lease, these authorities are not applicable to the Project, but the Project is nonetheless generally consistent with these authorities. The purpose of the Land Use Code is to "promote the health, safety, and general welfare of the residents of the Reservation and to develop and maintain adequate standards for diversity in land use and building patterns on the Reservation" (Land Use Code, Section 102). As stated in the Land Use Code, to achieve the purposes stated above, the Tribe is guided by the goals set forth in the Land Use Plan (Campo Band of Diegueño Mission Indians 2010), which guides future development on the Reservation.

The Land Use Plan is a planning document adopted by the General Council of the Tribe and is "the policy guide to assure that future physical development within the Campo Indian Reservation occurs in a manner consistent with the Campo Band's goals for its economic and social development and with its concern that this development does not threaten the environment and cultural resources of the Reservation or surrounding communities."

The Project has been designed in consultation with the Tribe to ensure consistency with Tribal statutes, land use planning documents, policies, and other considerations.

Section 1.3 and Appendix C of this EIS describes other federal laws applicable to the Project, including the Endangered Species Act, the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, the Clean Water Act, the Clean Air Act, the National Historic Preservation Act, NEPA, and Executive Orders 11988, 11990, and 13112. Other federal agencies with regulatory/permitting control over an element of the Project, including the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and U.S. Environmental Protection Agency, are discussed in Section 3.13, Other Issues Discussed in This EIS. Substantial conflicts with their policies or regulatory controls are not anticipated.

5.5 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL OF ALTERNATIVES AND MITIGATION MEASURES

Construction of the Project would require the use of different forms of energy. The primary source of energy used in the construction process would be diesel fuel for the operation of construction vehicles, equipment, and machinery. Some electrical energy would also be necessary for operation of certain types of equipment used throughout the construction process. The energy requirements would vary throughout construction, dependent on the type of ongoing and overlapping activities. Energy requirements for each alternative would vary slightly but are considered to be generally similar.

During the Project's operational phase, operation of the wind turbines and associated infrastructure would provide a new source of electrical power generated from a renewable resource. The Project would reduce emissions attributable to electrical generation in the region, including GHG emissions. The reduction in GHG emissions is fully detailed in Section 4.4 of this EIS. This reduction in fossil fuel combustion and the release of pollutants and GHG emissions over the useful operating life of the Project would result in a net beneficial permanent impact to the conservation of fossil fuels and improved air quality as well.

5.6 NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS AND CONSERVATION POTENTIAL OF ALTERNATIVES AND MITIGATION MEASURES

Natural resources would be permanently and continually consumed by Project implementation, during both construction and operation. Most resources would be used during construction activities. These natural and depletable resources necessary during construction may include water, natural gas, fossil fuels, metals, lumber, aggregate, and potentially other natural resources as needed. After the operational life of the Project, approximately 25 to 38 years, the Project would be decommissioned and components of the Project would be recycled or reused as feasible at that time.

During operation, the need for natural and depletable resources would be greatly reduced relative to construction and would include mainly the use of fossil fuels for the operation of maintenance vehicles and equipment. Section 5.3 details those natural resources that would be committed with implementation of the Project. The use of natural or depletable resources would generally be similar for each Project alternative.

Similar to the discussion in Section 5.5, the Project would reduce emissions attributable to electrical generation in the region, including GHG emissions. The reduction in GHG emissions is fully detailed in Section 4.4 of this EIS. This reduction in fossil fuel combustion and the release of pollutants and GHG emissions over the useful operating life of the Project would result in a net beneficial permanent impact to the conservation of fossil fuels and improved air quality.

5.7 DESIGN OF THE BUILT ENVIRONMENT, INCLUDING THE REUSE AND CONSERVATION POTENTIAL OF ALTERNATIVES AND MITIGATION MEASURES

While the Project would result in a net beneficial permanent impact to the conservation of fossil fuels and reduced GHG emissions, the built infrastructure associated with the Project has potential for future reuse or conservation. Many materials used in construction, such as metals, concrete, and others, can be recycled and reused. However, some components of the Project may not be recyclable or reusable.

For example, some composite materials used for construction of the wind turbine blades are not currently recyclable. It is unknown what the potential reuse or recycling options may be for Project components once the Project is decommissioned in approximately 25 to 38 years. However, it is expected that options and methods for recycling or reusing components of the wind turbines or other Project elements would improve and expand over the operational life of the Project and additional opportunities would be available when decommissioned. This issue would be similar for all Project alternatives.

The Project would be in contrast to the natural environment and introduce highly visible manmade elements. The ability of the Project design to be substantially modified is limited by factors such as meteorological conditions, setback requirements, resource avoidance, and others.

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