

3.13 Utilities and Service Systems

This section describes the existing conditions and potential impacts pertaining to existing utilities and service systems in the eastern portion of the county that would result from the proposed project. Specifically, it addresses impacts on water supply, wastewater, stormwater, solid waste disposal, telecommunications, and gas and electrical utilities; it also assesses the proposed project's impacts related to electromagnetic interference (EMI). Mitigation measures are recommended for those impacts that were determined to be significant. Information for this analysis was derived from the Shasta County General Plan and consultation with service providers.

3.13.1 Existing Conditions

This section discusses the existing utilities and service systems in the project area.

Environmental Setting

Study Area

The study area for this analysis is defined as the service area for the relevant utility or service system. The study area for water supply, wastewater, stormwater, and telecommunications is the project area. The study area for solid waste disposal and gas and electrical utilities is Shasta County.

Water Supply

Most of the water supplies in the project vicinity are either individual or onsite supplies intended to meet the demands of timber production, rangeland, open space/recreational uses, and other rural land uses on the forested lands surrounding the project area. The Burney Water District, the nearest public water supplier, is approximately 7 miles east of the project area and supplies residences and businesses in the town center of Burney (Shasta County 2004). The Burney Water District has sufficient capacity to accommodate an additional 1,500 customers (Shasta County 2004).

Although surface water runoff is the primary water source in Shasta County (Shasta County 2004), surface water supplies in the project area are limited by the area's steep topography. Existing water supplies in or adjacent to the project area are not well defined or quantified, but most likely consist of groundwater underlying the project area. Potential water-bearing groundwater resources in the project area are described in Section 3.8, *Hydrology and Water Quality*.

Wastewater

In general, wastewater treatment in unincorporated Shasta County and in the project vicinity is achieved by onsite septic systems. The nearest public wastewater treatment provider to the project area is the Burney Water District, which treats sewage from the town center of Burney (Shasta County General Plan 2004). The Burney Water District has sufficient capacity to accommodate an additional 700 customers (Shasta County 2004). There are no existing wastewater treatment facilities or infrastructure in the project area.

Stormwater

Existing stormwater infrastructure in the project area is limited. Standard culverts provide for the discharge of stormwater runoff to intermittent streams along existing access roads throughout the project area. There is no stormwater quality treatment infrastructure in the project area. Because most of the lands in the project vicinity are forested, stormwater infrastructure in these areas would generally be limited to culverts or other drainage features to allow for the maintenance of existing drainage patterns.

Solid Waste Disposal

Shasta County has three landfills, all located in the southwestern portion of the county. In the project vicinity, solid waste is sent to the Burney Transfer Station and is ultimately disposed of at the Anderson Landfill. The Burney Transfer Station is approximately 4 miles from the project area, and the Anderson Landfill is located approximately 60 miles southwest of the project area. As of 1999, the permitted maximum daily tonnage at Anderson Landfill was 1,850 tons with a total acreage area of 246 acres and disposal area of 130 acres. Total remaining landfill capacity as of October 26, 1998, was approximately 9 million cubic yards, and the life of the landfill was estimated at 43 years. The Anderson Landfill is permitted to accept non-hazardous waste (glass, paper, plastic, metal, food scraps, green waste, tires, and construction waste) in keeping with the landfill's Solid Waste Facility Permit (Shasta County Environmental Health Department 1999).

According to the California Integrated Waste Management Board's *Jurisdiction Profile for Shasta County Waste Management Agency*, Shasta County has two certified used oil centers, and the number of programs for recycling, source reduction, and special waste materials is above the average number for local waste management agencies in California. Of the approximately 251,305 tons of solid waste Shasta County produced in 2004, 39% (98,009 tons) was disposed of at Shasta County landfills, while 61% (153,296 tons) was diverted from the waste stream through recycling and waste reduction programs and similar strategies (California Integrated Waste Management Board 2007).

Telecommunications Utilities

Existing communication development on Hatchet Ridge consists of communication towers for the Bunchgrass and Bear Springs radio facilities and associated access roads. The owners/operators of the communication towers are Verizon, Jefferson Public Radio, and American Tower. The primary local telephone service provider in the project vicinity is Frontier Telecommunications (Burney Chamber of Commerce 2007).

Radio and Television Communication

Hatchet Mountain and the Burney area receive television signals from Redding, Chico, and the Sacramento Metropolitan area. Some television stations provide the Burney area with reception via the communications towers on Hatchet Mountain. Some of these television stations have only weak signals in the Burney area, requiring a strong antenna for acceptable reception. Television receivers in the valleys near Hatchet Mountain often have poor reception because the nearby mountains block signals. Burney has local cable television provided by Time Warner Cable (Miceli pers. comm.). Due to the rural character of the project vicinity, many residents rely on satellite dishes to supplement their television viewing access.

AM and FM radio signals originate from a number of radio stations in the Redding and Chico areas, as well as local stations in Burney, including KVIP, KIBC, and KCNO (Miceli pers.

comm.). While many of the stations have weak signals, some stations utilize the radio towers on Hatchet Mountain.

Cellular Phone and Microwave Communication

Microwaves are electromagnetic waves that carry radio, cellular telephone, digital, and other information through the atmosphere. Microwave point-to-point communications carry information at high speed for public, private, and military users. Microwave signals propagate along lines of sight, carrying information from rooftop to hilltop on a zigzag cross-country path. As signals weaken with distance from the transmitter, they are repeated, about every 10 miles, by a receiver/amplifier/transmitter station—generally visible as a tower on which either a parabolic dish or horn antennae are mounted. Such antennae are directional, receiving or transmitting signals only along the direction in which they are pointing. This feature helps to eliminate interference caused by spurious reflections of the signal from objects near the receiver or near the line of sight between the receiver and the transmitter. A difference of a few hundred feet in the location of a receiver may have a substantial effect on the interference caused by reflecting objects near the receiver or beam path.

Numerous microwave transmission signals cross Hatchet Mountain from a variety of sources that utilize the radio, cellular, and television towers on the ridgeline. According to a technical report completed for the project applicant by *Comsearch*, there are 62 microwave paths that intersect the project area (see Appendix E). The transmission pathways belong to PG&E, the State of California, Citizens Communication, Time Warner cable, AT&T, Jefferson Public Radio, and the federal government. Several of the microwave transmission pathways pass directly through the proposed project area, and one appears to follow the Hatchet Mountain ridgeline through most of the project area. Shasta County does not currently have an ordinance requiring project applicants to submit proof of the notification of microwave link owners whose transmission pathways pass within proximity of the proposed project. Other counties in California, such as Solano and Kern Counties, require proof of notification for microwave link owners with pathways/transmitters within 2 miles of a proposed project site.

Much of the lower frequency end of the electromagnetic spectrum has been left out of the above discussion of the affected electromagnetic environment. For example, AM and FM radio transmitter and receiver locations associated with communication towers on Hatchet Mountain have not been discussed in detail because these signals would only be affected when the receiver or transmitter is situated very near a wind turbine generator or a power transmission line. Existing electromagnetic frequency levels in the project are isolated to the two radio tower sites and the PG&E 230 kV transmission line corridor. Existing electromagnetic frequencies in the project area will not affect the operation of the proposed wind turbines.

Aircraft Navigation Signals

There are four publicly operated airports in Shasta County.

- Fall River Mills Airport, approximately 20 miles from the project area.
- Shingletown Airport, approximately 27 miles from the project area.
- Redding Municipal Airport, approximately 39 miles from the project area.
- Benton Field, approximately 39 miles from the project area.

There is also an airport in the general project vicinity in Tehama County at Red Bluff, approximately 39 miles from the project area.

Very High Frequency Omni-Directional Range (VOR) systems are aircraft navigational radio beacons. VOR systems are sited at both the Redding Municipal Airport and Red Bluff Airport, both approximately 39 miles from the project area. The VORs are necessary for instrumented aviation and are maintained by the FAA. Both the airports at Fall River Mill and Benton Field have CTAF/UNICOM radio communication capability, but no tower and aircraft instrumentation systems. The Shingletown Airport is an uncontrolled field with no radio or aircraft instrument navigation capability. The closest military airfield is Beale Air Force Base near Marysville, California, about 150 miles south of the project area.

The project area is not in any documented flight path for Shasta County airports (Walker pers. comm.), but is located within 0.25 mile of an MTR (CH2M Hill 2005).

The FAA has oversight of any object that could have an impact on the navigable airspace or communications/navigation technology of aviation (commercial or military) or Department of Defense (DOD) operations. As described in Section 3.7, *Hazards and Hazardous Materials*, the FAA requires that a Notice of Proposed Construction (Form 7460-1) be filed for any object that would extend more than 200 feet above ground level (or less in certain circumstances, for example if the object is closer than 20,000 feet to a public-use airport with a runway more than 3,200 feet long).

For any filed project, the FAA undertakes an initial aeronautical study within the relevant FAA region, and issues either a Determination of No Hazard to Air Navigation (DNH)—the “green light” for the project—or a Notice of Presumed Hazard (NPH). If an NPH is issued, the FAA initiates an in-depth technical analysis (commonly called an extended study) to support the NPH and evaluate impacts on air operations. If, after the extended study (which may include a public comment period), there remains an operational impact, the FAA will try to negotiate an acceptable height for a project that has received a NPH. If no agreement can be reached, FAA will issue a Determination of Hazard (DOH). A DOH can be appealed to FAA Washington Headquarters. (Massachusetts Technology Collaborative 2007.)

The FAA analysis considers several types of airspace impacts: (1) imaginary surface penetration, (2) operational impacts, and (3) electromagnetic interference (EMI). Imaginary surface penetration includes penetration of the defined space near airports dedicated to the takeoff, travel, and landing of aircraft. If an imaginary surface is penetrated by a constructed object (e.g., a turbine), the FAA conducts an extended study to determine if the turbine poses an operational problem for the relevant airport or for a specific visual flight route between airports. If the penetration does not pose an operational impact it may be determined not to be a hazard.

Operational impacts are those that affect operations under either visual flight rules (VFR) or instrument flight rules (IFR). Examples of operational impacts include increasing the minimum flight altitude in a specific area (either for enroute air traffic or for circling at an airport), diverting air traffic away from an obstacle, increasing the minimum climb gradient (steepness) for airport departure, or increasing the minimum descent altitude at the obstacle location for airport arrivals.

EMI is outlined in greater detail below. However, experience has shown that wind turbines can degrade the performance of air traffic control (ATC) or air defense radar. The phenomenon can include sudden or intermittent appearance of radar contacts at the location of the wind turbine

because of blade motion or rotation of the turbine to face the wind. Interference with ATC radar is generally limited to wind turbines that are within the radar line of sight. Studies indicate that this problem may be minimal for turbines more than 5 nautical miles from the radar. (Massachusetts Technology Collaborative, 2007).

Potential Communications Interference

EMI is one of the most common problems in microwave communication. EMI can result from contact between microwave signals and metallic structures such as house siding, large trucks, power lines, other microwave communication stations, and wind turbines. Large structures can also interfere with *side lobes* emitted by microwave antennas (Evans Associates 2006). A side lobe is a segment of an antenna wave pattern that is located in a direction different from that of the lobe containing the maximum power. Side lobes can pick up signals that are reflected from nearby obstructing objects, even though these reflected signals are not in the main microwave transmission path. This unwanted reception can cause off-axis receiver interference.

Department of Energy (DOE) wind generation research has demonstrated that wind turbines with metal blades can affect television, radio, microwave, and other electromagnetic signals. This effect could potentially cause communications disturbance. However, fiberglass-reinforced polyester wind turbine blades—such as those planned for the proposed project—allow for some electromagnetic signals to pass through them with little disturbance, resulting in no effect unless the transmitter or receiver is in close proximity to the turbine.

Corrugated metal buildings, transmission lines, and other metallic structures in the project area could cause EMI. Metallic objects, such as large trucks on nearby highways and low-flying aircraft, can also cause momentary interference with microwave signals. However, there are no major roads near the project area, and no major civilian, commercial, or military low flight paths are near enough to the existing tower locations or the proposed turbine locations to cause such effects.

Regulatory Setting

Federal

Federal regulations pertaining to water supply are outlined in Section 3.18, *Hydrology and Water Quality*. Federal regulations pertaining to navigable airspace are outlined in Section 3.7, *Hazards and Hazardous Materials*.

State

California Public Utilities Commission

The CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy. CPUC establishes service standards and safety rules, authorizes utility rate changes, and enforces CEQA for utility construction; it also regulates the relocation of power lines by public utilities under its jurisdiction, such as PG&E.

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 24 CCR Part 6 in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. CPUC adopted new standards in 2001 as mandated by Assembly Bill (AB) 970 to reduce California's electricity demand. The new standards went into effect on June 1, 2001. In addition, new standards will be adopted in January 2008 when California adopts the 2006 International Building Code.

Renewable Portfolio Standard (SB 1078)

In 2002, the Governor signed the Renewable Portfolio Standard (RPS), SB 1078. This standard requires an annual increase in renewable generation equivalent to at least 1% of electricity sales, with an aggregate goal of 20% by 2017. Currently renewable generation accounts for 11% of retail sales. California's Energy Action Plan has targeted a goal of 20% by 2010.

California Integrated Waste Management Act

In 1989, AB 939, known as the Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the California Integrated Waste Management Board (CIWMB) and set forth aggressive solid waste diversion requirements. Under AB 939, every city and county in California was required to reduce the volume of waste sent to landfills by 50% by 2000, and assure maintenance of at least a 15-year landfill capacity for solid wastes that are generated in the county and cannot be reduced or recycled. Reduction of the waste stream would be accomplished through recycling, reuse, composting, and other means. AB 939 requires counties to prepare a Countywide Integrated Waste Management Plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, information about existing and proposed solid waste facilities, and an overview of specific steps that will be taken to achieve the goals outlined in the components of the CIWMP.

Local

Shasta County General Plan

The following Shasta County General Plan (2004) objectives and policies would be applicable to the proposed project.

6.4 Energy

Objectives

E-1 Promote energy savings by integrating transportation, land use, and air quality planning.

E-2 Increase utilization of renewable energy resources by encouraging development of solar, hydroelectric, biomass, waste-to-energy, and cogeneration sources.

E-3 Promote energy education and information as a way of assisting the public in making informed decisions regarding energy efficiency.

E-4 Conserve nonrenewable energy resources, specifically raw materials, transportation fuels, and resource land area.

Policies

E-d Priority shall be given to energy projects and programs that provide jobs and other economic benefits within the County for County residents.

E-e Economic development activities and grant programs should emphasize efforts that permanently improve energy efficiency in existing and new buildings, including programs involving low- and moderate-income housing.

E-f Recycling and integrated waste management goals that are designed to promote energy efficiency shall be encouraged and promoted.

E-k Encourage and promote increased telecommunication activities for both private and public sector employees in order to help decrease energy use and reduce air quality impacts.

6.6 Water Resources

Objectives

W-2 Take all reasonable action to protect against the export of water resources from Shasta County which will be needed for ongoing and future beneficial uses within the County.

W-8 Update the current Groundwater Management Plan to reflect new state requirements and to address any changes that result from selection of a preferred alternative for basinwide water resources management.

W-9 Institute effective measures to protect groundwater quality from potential adverse effects of increased pumping or potential sources of contamination.

Policies

W-a Sedimentation and erosion from proposed developments shall be minimized through grading and hillside development ordinances and other similar safeguards as adopted and implemented by the County.

W-c All proposed land divisions and developments in Shasta County shall have an adequate water supply of a quantity and a quality for the planned uses. Project proponents shall submit sufficient data and reports, when requested, which demonstrate that potential adverse impacts on the existing water users will not be significant. The reports for land divisions shall be submitted to the County for review and acceptance prior to a completeness determination of a tentative map. This policy will not apply to developments in special districts which have committed and documented, in writing, the ability to provide the needed water supply.

W-e The Shasta County Water Agency should encourage and promote interagency water planning efforts within the County, particularly in the Redding Basin.

W-f The County shall encourage and participate in interagency planning efforts, such as the Redding Area Water Council, to protect and enhance the quality of all groundwater and surface water resources.

7.5 Public Facilities

Objectives

PF-1 Development of a comprehensive, long-term plan for wastewater treatment within the County, coordinated with community development objectives and designed to provide this service in a manner making the most effective use of public resources.

PF-2 Achievement of an improved understanding of the opportunities and constraints governing the use of on-site wastewater treatment systems, both conventional and alternative, in Shasta County.

PF-3 Develop the Shasta County solid waste program in accordance with the adopted management plans.

Policies

PF-b Shasta County shall permit experimentation with “alternative” wastewater treatment technologies on a limited and carefully controlled basis, including advance provision establishing what public or private entity will be responsible in the event of failure, to determine which systems are feasible.

PF-c Shasta County shall take actions required to implement plans for the management of its solid waste stream.

PF-h Public uses (e.g. schools, parks, waste disposal sites) and public utilities (e.g. substation, transmission lines) whose site-specific locations often cannot be identified in advance by the General Plan may be permitted throughout the County to serve the public need. Appropriate zoning on site-specific locations will be determined in response to the identified need as it occurs. Solid waste disposal facilities shall be conditionally permitted to ensure that the site is compatible with adjacent land uses. Surrounding land uses, to the extent feasible, shall be regulated to avoid incompatibility with the solid waste disposal facilities.

Shasta County Well Permit

EHD requires that a project applicant obtain a valid permit from the County to drill, destroy, deepen, or recondition a water well. To obtain a permit, the project applicant must submit a completed application, plot plan, and the required fees. All wells must be installed by a professional with a C-57 Water Well Contractor’s License to comply with Section 13750.5 of the California Water Code. An EHD staff member must be present to verify proper placement of the annular seal around the well casing.

Solid Waste Regulations

In response to the Integrated Waste Management Act of 1989, the County developed and approved a Source Reduction and Recycling Element in 1991, which was also approved by the California Integrated Waste Management Board in 1997. The Source Reduction and Recycling Element addresses the County’s waste generation characteristics, source reduction, recycling, composting, education and public information, funding, and integration of solid waste management issues. The County also adopted a Household Hazardous Waste Element, which acts to supplement and support the Source Reduction and Recycling Element.

3.13.2 Impact Analysis

This section describes the impact analysis relating to utilities and service systems. It describes the methods used to determine the project's impacts and the thresholds of significance of those impacts. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The analysis of potential impacts on utilities and service systems is based on a review of the General Plan guidelines, goals, and policies, as well as on other applicable federal, state, and local regulations. The evaluation of impacts was based on their likeliness to increase demand and interfere with or exceed capacity of existing utilities and service systems, as well the impact of constructing additional utilities and service systems.

Thresholds of Significance

Criteria for determining the significance of impacts related to utilities and service systems were derived from the environmental checklist form in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.). An impact related to utilities and service systems was considered significant if it would result in any of the conditions below.

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing wastewater treatment facilities, the construction of which could cause significant environmental effects.
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Require new or expanded entitlements to provide sufficient water supplies for the project.
- Result in a determination by a wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Not comply with federal, state, or local statutes and regulations related to solid waste.
- Result in the need for the construction of telecommunication utilities.
- Result in wasteful, inefficient, and unnecessary consumption of energy or exceed energy supply, requiring the construction of gas and electric utilities.
- Interfere with microwave transmissions, resulting in interference with television or radio reception, mobile phone signals, or aircraft navigation signals.

Impacts and Mitigation Measures

As described in Chapter 2, *Project Description*, the bathroom and kitchen at the operations and maintenance facility would utilize a septic system for wastewater treatment during operations. The septic system would be designed by a qualified professional to comply with Shasta County Department of Resource Management, Environmental Health Division's *Septic Tank and Leach Line Design, Construction, and Installation Guidelines*, and would be subject to all relevant County permits and approvals. Compliance with the Environmental Health Division's septic requirements would also maintain compliance with applicable Central Valley Water Board onsite wastewater treatment requirements. Because the proposed project would not connect to any wastewater treatment infrastructure or facilities, there would be no impact on the capacity of an existing wastewater treatment facility.

Impact USS-1: Need to construct and upgrade stormwater drainage facilities (less than significant)

The proposed project would require the construction of stormwater runoff drainage facilities to the extent that culverts would be installed and/or upgraded along the length of Bunchgrass Lookout Road through the project area. Project construction and grading would maintain the existing local surface drainage patterns. Impermeable surfaces created by the project (e.g., the concrete tower foundations) would be limited; accordingly, stormwater runoff would not be collected or treated. Instead, stormwater would run off impermeable surfaces and infiltrate the surrounding ground. Runoff from impermeable surfaces would be limited to the amount of rainfall deposited onto the turbine foundations (approximately 20 feet in diameter), foundations for turbine transformers (if applicable), substations, the interconnection facility, and O&M buildings. Graveled access roads would be permeable and would allow stormwater to percolate into surrounding soils.

As described in Section 3.8, *Hydrology and Water Quality*, existing culverts across intermittent streams would be replaced with larger culverts as necessary, and drainage improvements would be made (in accordance with an erosion control plan prepared pursuant to the NPDES permit) as necessary to control stormwater runoff. Other stormwater drainage facilities would not be modified.

Construction of the proposed project would entail grading, minor road-widening, culvert replacement, and other construction activities. However, the project's features would not significantly increase the amount of stormwater runoff and would not alter the existing drainage patterns. Therefore, this impact is considered less than significant, and no mitigation is required.

Impact USS-2: Increased demand for water supply (less than significant)

The project's water demands could potentially result in an exceedance of the current water supply capacity if the demands contributed to existing water supply shortages or were greater than the existing capacity of an existing water supply facility. Water supplies for operations of the proposed project would be supplied either by an onsite groundwater well developed for that purpose or, if such a well is infeasible due to geologic or geomorphic constraints, by a water tank that would be filled periodically by a private vendor with existing water rights. As noted in Section 3.8, *Hydrology and Water Quality*, the anticipated water use for project operations would be less than 5,000 gallons per day. It is unlikely the project would significantly affect groundwater supplies or nearby groundwater users because of the small quantity needed for the project. Because water supplies for the project would be provided through an existing water rights holder or through the project's groundwater well, the capacity of existing water supplies would not be

exceeded. The project would not require the acquisition or expansion of entitlements and there would be no need to develop infrastructure to connect to an existing water supply distribution facility. Therefore, this impact is considered less than significant, and no mitigation is required.

Impact USS-3: Generation of solid waste during construction and operation of the proposed project (less than significant)

Solid waste generated during construction would include construction materials such as scrap lumber and metal. This construction debris would be collected by either the construction contractor or Burney Disposal Inc. and disposed of at the Burney Transfer Station and ultimately the Anderson Landfill. Burney Disposal would provide 20- or 30-yard drop boxes to the site.

Burney Disposal has stated that it could provide waste removal service for solid waste generated by daily operations, or project personnel could haul the waste to the landfill. The applicant will lease bins from Burney Disposal with metal lids and locks to deter bears, vultures, and other wildlife from foraging in the bins (Ghiorso pers. comm.). Solid waste generated during project operation would generally consist of office waste (e.g., food and beverage containers) and some paper waste (e.g., office paper, magazines), as well as maintenance waste associated with turbine operations (e.g., oil and other machine maintenance products).

The County anticipates that the proposed project would not generate significant quantities of solid waste that would cause the solid waste facilities to exceed their permitted capacity (Shasta County Department of Resource Management, Planning Division 2006). With 6–10 full-time workers and a waste stream generation factor of 9.2 pounds per day per worker, approximately 92 pounds per day, or 33,580 pounds per year, of office waste (e.g., paper, cups) is expected to be generated by the project during operation. This figure represents approximately 0.04% of the existing waste stream in the county from business uses as of 2004 (California Integrated Waste Management Board 2007). Because of the low volume of waste associated with the proposed project, there would be no need to increase the landfill capacity.

The landfill is projected to reach capacity by 2041. The Shasta County General Plan (2004) provides for new solid waste facilities to be conditionally permitted in all areas of the county as the need occurs. The proposed project would comply with federal, state, and local statutes and regulations related to solid waste. Based on these considerations, the proposed project would not substantially reduce the capacity of the Anderson Landfill. Therefore, this impact is considered less than significant, and no mitigation is required.

Impact USS-4: Need to construct new telecommunications infrastructure (less than significant)

The proposed project includes underground and overhead communication system cabling and underground fiber optic or copper communications lines between the O&M facility, all wind turbines, and the substation. This communication system would allow individual wind turbines and other project-related facilities to be monitored and controlled both on site and from remote locations. Because this system would be constructed as part of project construction, there would be no need to construct additional regional telecommunication infrastructure to serve the proposed project.

The proposed project would require only minimal telecommunications service; specifically, communications for use by the 6–10 permanent employees that would staff the facility in the operational phase. If existing landline capacity is not available, it is presumed that these individuals would use cellular service, which is readily available in the project area. Because no

new infrastructure would be necessary, the proposed project's impacts on telecommunication service are considered less than significant. No mitigation is required.

Impact USS-5: Reduction in reliance on nonrenewable resources as a source of energy production (beneficial)

The proposed project would not result in an increase in dependence on nonrenewable energy resources or in substantial increases in peak and base period use of energy. New development on the project site, including the O&M building, would be required to incorporate energy conservation measures in compliance with Title 24 of the Unified Building Code (UBC) as well as applicable standards in the 2007 California Building Code. There are no natural gas utilities in the project area, and the project would not use natural gas for project construction or operation.

Furthermore, because the project is an energy generation facility, it would result in beneficial impacts on energy resources.

The project objectives include assisting the state to meet its legislated Renewable Energy Portfolio standards for the generation of renewable energy, which require investor-owned utilities to purchase 20% of their power from renewable sources by 2017; offset energy generated from fossil fuels; and produce up to 102 MW of electricity. Accordingly, there would be no increased demand on natural gas or existing electricity-generating utilities. Moreover, because the project would rely on a renewable energy source (wind) to generate power, and contribute to the state's renewable energy portfolio goals, it would have a beneficial impact on nonrenewable energy resources. This impact is considered beneficial.

Impact USS-6: Potential to interfere with microwave transmissions, resulting in interference with television or radio reception or mobile phone signals (less than significant with mitigation)

Wind turbines can potentially disrupt electromagnetic signals used in a range of telecommunications. These effects can result from three phenomena: near field effects, diffraction, and reflection/scattering. These three mechanisms depend on the location of the wind turbine relative to the transmitter and receiver, characteristics of the rotor blades, signal frequency and receiver characteristics, and the ambient atmosphere.

Metal buildings, such as the proposed corrugated metal O&M building, can also potentially disrupt electromagnetic signals by means of beam interference if the building intersects the line of sight of the microwave beam.

Because the project area contains several radio and communications facilities, interference resulting from the proposed project could result in potentially significant effects on these radio, television, or telecommunications utilities. Although Comsearch has provided the names, addresses, and path locations of the microwave communication link owners whose microwave paths travel within 2 miles of the project site, Comsearch was not provided with the actual site locations for the wind turbines on Hatchet Mountain; consequently, Comsearch could not confirm that the wind turbines would not interfere with signals (Appendix E). The results of Comsearch's initial investigation indicate the potential for at least one microwave signal pathway running along the length of the ridge to be affected by wind turbines in the proposed configuration (Appendix E). Implementation of Mitigation Measure USS-1 would reduce this impact to a less-than-significant level.

Mitigation Measure USS-1: Notify communication tower owners and site wind turbines to avoid conflicts with microwave signals

Prior to issuance of the conditional use permit for this project, the project applicant will notify all owners of frequency-based communication stations and towers within 2 miles of the proposed project. Wind turbine towers and the proposed corrugated metal O&M building will be sited to avoid potential conflict with microwave communication signals.

In the event that a complaint is received regarding microwave or land mobile pathway interference, the project applicant will appropriately and satisfactorily resolve receiver interference through coordination with owners of frequency-based communication stations and towers. Possible actions include installation of high-performance antennas at nearby microwave sites, if required.

Impact USS-7: Potential to interfere with aircraft navigation signals (less than significant with mitigation)

Wind energy development has the potential to interfere with aircraft navigational systems. VOR systems are aircraft navigational radio beacons that are maintained by the FAA, as well as other forms of radar communications. The nearest airports with VOR navigational systems are 39 miles from the proposed project vicinity. It is generally concluded that little or no signal interference can occur when wind turbines are located more than 2 miles from either a runway or a beacon location. In all cases, the airports and navigational systems that could be affected by the proposed project are located considerably farther than 2 miles from the proposed project area—too far to result in interference from the proposed turbines. As described in Section 3.7, *Hazards and Hazardous Materials*, the FAA requires that a Notice of Proposed Construction (Form 7460-1) be filed for any object that would extend more than 200 feet above ground level. Once the Form 7460-1 is reviewed by the FAA, the applicant shall implement measures to reduce impacts to aircraft and aircraft navigation in accordance with the requirements of FAA's analysis of the Form 7460-01 and Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting*.

Implementation of Mitigation Measures HAZ-4a and HAZ-4b, which require compliance with FAA and Caltrans Division of Aeronautics regulations, would reduce this impact to a less-than-significant level.