

3.8 Hazards and Hazardous Materials

This section describes the regulatory and environmental setting for hazards and hazardous materials in the project area. It describes impacts regarding hazards and hazardous materials that would result from implementation of the Initial and Full Repower phases. It also addresses general issues of public safety related to potential accidents, upset conditions including transport of materials either for the project or not directly related to the project, and airport-related safety hazards.

3.8.1 Existing Conditions

Regulatory Setting

Federal

Hazardous Materials and Waste Handling

The federal Resource Conservation and Recovery Act of 1976 (RCRA) established a *cradle-to-grave* regulatory program governing the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements. In California, the Department of Toxic Substance Control (DTSC) regulates the generation, transportation, treatment, storage, and disposal of hazardous material waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations also require hazardous materials users to prepare written plans, such as a Hazardous Materials Business Plan, that describe hazardous materials inventory information, storage and secondary containment facilities, emergency response and evacuation procedures, and employee hazardous materials training programs. A number of agencies participate in enforcing hazardous materials management requirements, including DTSC, the Regional Water Board and the Alameda County Department of Environmental Health's Hazardous Materials/Waste Program.

Transportation of Hazardous Materials and Oversized Loads

The U.S. Department of Transportation regulates hazardous materials transportation on all interstate roads. Within California, the State agencies with primary responsibility for enforcing federal and State regulations and for responding to transportation emergencies are the California Highway Patrol (CHP) and the Caltrans. Together, federal and State agencies determine driver-training requirements, load-labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code. Requests for such special permits require the completion and application for a Transportation Permit.

Aviation Hazards

FAA Regulations Part 77 (14 CFR 77) establish standards for what constitutes an obstruction to navigable airspace. Obstructions include any object if it is: (1) 500 feet above ground level; (2) 200 feet above ground level or above the established airport elevation, whichever is higher, within 3 nautical miles of an airport and (3) above a height within a terminal obstacle clearance area or en route obstacle clearance area. In addition, California Public Utilities Code Section 21659 prohibits hazards near airports (as defined by 14 CFR 77) unless a permit allowing the construction is issued by the Caltrans Division of Aeronautics. The FAA requires a developer to file a Notice of Proposed Construction (Form 7460) for any structure greater than 200 feet above ground level and requires a proposal for marking and lighting of the wind turbines and towers. The FAA would determine whether the Initial Repower or Full Repower phases would create a hazard to navigable airspace and issue either a Determination of No Hazard or a Notice of Presumed Hazard.

State of California

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed below.

Worker Safety

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the work place. The California Division of Occupational Safety and Health (Cal/OSHA) and the federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the workplace.

Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices within the state. At sites known to be contaminated, a site safety plan must be prepared to protect workers. The site safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Fire Protection

The California PRC includes fire safety regulations that apply to state responsibility areas during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations: (a) restrict the use of equipment that may produce a spark, flame, or fire; (b) require the use of spark arrestors¹ on equipment that has an internal combustion engine; (c) specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and (d) specify fire-suppression equipment that must be provided onsite for various types of work in fire-prone areas.

¹ A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap commonly is used to retain carbon particles from the exhaust.

Local

Alameda County General Plan

The Safety Element of the Alameda County General Plan (Alameda County 2013:24, 42) contains goals, policies, and actions the County might take related to non-natural hazards and fire hazards. Many of the principles and actions refer to new development. Those relating to the Sand Hill Wind Project as an existing facility are listed below.

Goal 2: To reduce the risk of urban and wildland fire hazards (*Chapter 1, Natural Hazards, Section 3, Fire Hazards*).

P3: Development should generally be discouraged in areas of high wildland fire hazard where vegetation management programs, including the creation and maintenance of fuel breaks to separate urban uses would result in unacceptable impacts on open space, scenic and ecological conditions.

Goal 2: Minimize residents' exposure to the harmful effects of hazardous materials and waste (*Chapter 2, Man Made Hazards, Section 2, Hazardous Materials*).

P1: Uses involving the manufacture, use or storage of highly flammable (or toxic) materials and highly water reactive materials should be located at an adequate distance from other uses and should be regulated to minimize the risk of on-site and off-site personal injury and property damage. The transport of highly flammable materials by rail, truck, or pipeline should be regulated and monitored to minimize risk to adjoining uses.

East County Area Plan

The ECAP contains the following goals, policies, and implementation programs related to fire protection.

Hazard Zones

Goal: To minimize the risks to lives and property due to environmental hazards.

Policy 134: The County shall not approve new development in areas with potential natural hazards (flooding, geologic, wildland fire, or other environmental hazards) unless the County can determine that feasible measures will be implemented to reduce the potential risk to acceptable levels, based on site-specific analysis.

Environmental Health and Safety

Program 117: The County shall work with the California Department of Forestry and Fire Protection to designate "very high fire hazard severity zones" in conformance with AB 337 (1992). The County shall ensure that all zones designated as such meet the standards and requirements contained in this legislation.

Program 118: The County shall prepare a comprehensive wildland fire prevention program including fuelbreaks, brush management, controlled burning, and access for fire suppression equipment.

Alameda County Department of Environmental Health

The Alameda County Department of Environmental Health (ACDEH) is the Certified Unified Program Agency (CUPA)—the agency certified by the California Secretary of Environmental Protection to implement the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program specified in Health and Safety Code Chapter 6.11 for Alameda County. As such, ACDEH oversees the regulatory programs for Hazardous Materials Business Plans, underground and aboveground storage tanks, onsite treatment of hazardous waste, hazardous waste generators, and California Accidental Release Prevention.

Alameda County Construction and Debris Management Ordinance

The Alameda County Construction and Debris Management Ordinance specifies how project-related construction and demolition waste is handled. The ordinance covers any project requiring a demolition permit and specifies the minimum requirements for diversion or salvage of waste. Projects covered under this ordinance are required to submit a debris management plan to the Alameda County Building Department.

Best Management Practices

As discussed under Chapter 3.6, *Geology, Soils, and Paleontological Resources* and Chapter 3.9, *Hydrology and Water Quality*, a project that would disturb 1 or more acres of soil, or would disturb less than 1 acre but is part of a larger common plan of development must obtain coverage under the General Permit Order 2010-0014-DWQ. Coverage under the General Permit requires the development and implementation of a SWPPP. A SWPPP includes plans for erosion and sediment control and would adhere to the County's grading ordinance and BMPs. Typical construction erosion control BMPs include the following.

- Perform clearing and earth moving activities only during dry weather.
- Limit construction access routes and stabilize designated access points.
- No cleaning, fueling, or maintaining vehicles onsite, except in a designated area where washwater is contained and treated.
- Properly store, handle, and dispose of construction materials/wastes to prevent contact with stormwater.
- Contractor will train and provide instruction to all employees/subcontractors on construction BMPs.
- Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, washwater or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.

Alameda County Wind Farm Standard Conditions

There is no ordinance dictating setback conditions in Alameda County; rather, setbacks are determined on a project-by-project basis in accordance with the standard conditions of approval for a CUP. Alameda County has standard conditions of project approval that include safety and noise setbacks for wind turbines. The setbacks are design standards based on a multiple of the total height of the wind turbine, including the blade (i.e., the taller the turbine, the larger the setback).

The *Alameda County Wind Farm Standard Conditions* (Alameda County 1998:Appendix F) contain the following safety setback conditions.

- a) From a Building Site upon which a wind farm has not been approved: three times the total height of the windmill (to top of blade), or four times the total height of the windmill if the ground elevation of the windmill is two or more times the height of the windmill above the building site at the closest point, but in no case less than 300'.
- b) From a Dwelling Unit: three times the total height of the windmill (to top of blade), or four times the total height of the windmill if the ground elevation of the windmill is two or more times the height of the windmill above the Dwelling Unit, but in no case less than 500'.

- c) From a public road, trail, recreation area, commercial or residential zoning: three times the total height of the windmill (to top of blade), or four times the total height of the windmill if the ground elevation of the windmill is two or more times the height of the windmill above the feature being protected, but in no case less than 500 feet unless it is shown in a report prepared by a qualified professional, and verified by the County, that a lesser minimum setback is adequate, however, in no case shall a setback less than 300 feet ever be provided.
- d) From the traveled way of I-580: six times the total height of the windmill (to top of blade), or eight times the total height of the windmill if the ground elevation of the windmill is two or more times the height of the windmill above the traveled way of I-580, but in no case less than 500 feet.

The setbacks specified under a) and b) above may be reduced by a maximum of 50 percent if the written, notarized, and recorded concurrence of the affected property owner is filed with this record. There shall be minimum setback from all property lines of 1.25 times the total height of the windmill.

Environmental Setting

This section describes the existing hazards and/or hazardous conditions within the project area and evaluates the potential for impacts relating to hazards and hazardous materials with implementation of the Initial Repower and Full Repower. Information used for the Records Review and Historical Use of the Property was compiled from the Final Phase I Environmental Site Assessment (Appendix I). Information used for the radio frequency (RF) facilities evaluation was compiled from the RF Engineering Report (Appendix K).

Records Review

A database search, compiled pursuant to Government Code Section 65962.5, was conducted for the project area by Environmental Data Resources, Inc. (EDR) (Appendix I). This includes all available federal, state, regional, and local agency database listings.

- National Priorities List (NPL) within 1 mile.
- De-listed NPL site list within 1 mile.
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) within 0.5 mile.
- CERCLIS No Further Remedial Action Plan within 0.5 mile.
- RCRA Corrective Action Reports (CORRACTS) within 1 mile.
- RCRA non-CORRACTS treatment, storage, and disposal (TSD) facilities within 0.5 mile.
- RCRA generators list on the Property and adjoining properties.
- Institutional control/engineering control registries on the Property.
- Emergency Response Notification System (ERNS) list on the Property.
- Mines master index file.
- State-equivalent CERCLIS sites within 1 mile.
- Landfills and/or solid waste disposal sites within 0.5 mile.
- State and tribal leaking underground storage tanks (LUST) list within 0.5 mile.
- State and tribal registered underground storage tank (UST) list on the Property and adjoining properties.

The Phase I Environmental Site Assessment indicated that there is no significant risk of environmental contamination expected at any of the project parcels, nor is there any need for environmental cleanup of existing conditions. Moreover, none of the individual parcels associated with the project area is listed on the hazardous materials databases searched for the report.

Historical Use of the Property

The project area has been utilized as rangeland or for periodic dry farming since before 1940. In the late 1980s, wind turbines were installed and since that time the project parcels have been used as a wind generating facility. Associated structures such as the operations shop and support shop, parts yard, and substation were also constructed during this time. Concurrent with wind generation, the project area has continued to be used for rangeland due to existing lease agreements (Appendix I).

Site Reconnaissance

Site reconnaissance was conducted by Tetra Tech in November 2011. During the site visit, records were obtained indicating nine separate clean-ups of gearbox oil on the project parcels between November 2007 and November 2011. These records consisted only of hours billed for clean-up efforts. It was also noted during the site visit that herbicides had been used around some of the transformer boxes for the purpose of weed control. Various operational activities noted during the site visit comprise: storage/maintenance facilities, boneyards (spare parts storage), herbicide applications (for fire prevention), transformers, turbine failure (aforementioned spill records), and substations.

A number of aboveground storage tanks were observed on the project parcels. These tanks are used to store water for fire-fighting emergencies. No recognized environmental conditions (REC) were identified on any of the project parcels.

Nearby Schools and Airports

The nearest school to the project is Mountain House Elementary (3950 Mountain House Road, Byron), approximately 1 mile north of the eastern parcel of the project area. San Joaquin Delta College (2073 South Central Parkway) is approximately 1.5 miles southeast of the eastern project parcels.

The nearest public use airport to the project areas is Byron Airport, 1.26 miles north of the project area, and the nearest private airstrip is Meadowlark Airfield, 3.16 miles south of the project area.

Fire Protection

The closest CAL FIRE station to the project area is the Castle Rock Station at 16502 Schulte Road in the city of Tracy, approximately 3 miles from the project area. The Castle Rock Station is part of CAL FIRE's Santa Clara Unit. This is a seasonal station generally operating during fire season, which typically extends from the middle of May through the end of October.

Crews and equipment from several different locations respond to wildland fires in the APWRA. According to Mike Martin, Battalion Chief of CAL FIRE Battalion 4, Santa Clara Unit, a typical CAL FIRE response to a full wildland dispatch would involve the resources listed below.

- Six 4-wheel-drive engines dispatched from Tracy, East Contra Costa, Sunol, and Patterson, each capable of holding 500 gallons of water.
- Two airtankers, each capable of holding 1,200 gallons of water.
- One helicopter from the Santa Clara Unit with a 6-person crew.
- One battalion chief.
- One to three water tender trucks, each capable of holding 2,000 gallons of water.
- Two bulldozers.
- 21 five-person hand crews dispatched from Delta Camp in Fairfield.
- One air tactical aircraft, a fixed-wing aircraft used for aerial command and control of aircraft on wildland fires, dispatched from Hollister.

Although the APWRA is under CAL FIRE jurisdiction, the Alameda County Fire Department (ACFD) would also respond to any wildland fire in the project area. The ACFD is a consolidated department with a total of 30 fire stations serving the unincorporated areas of Alameda County; the cities of San Leandro, Dublin, Newark, and Union City; the Lawrence Berkeley National Laboratory; and the Lawrence Livermore National Laboratory. ACFD services include fire suppression, arson investigation, hazardous materials mitigation, paramedic services, urban search and rescue, fire prevention, and public education.

Stations 20 and 8 are the two ACFD stations closest to the project area. Station 20 is located at the Lawrence Livermore Laboratory at 7000 East Avenue in Livermore, approximately 6 miles west of the project parcels. Station 20 employs two crews comprising eight firefighters, one Type III engine, two Type IV apparatus (patrols), a hazardous materials unit, and an ambulance (Alameda County Fire Department 2012). In addition to the Lawrence Livermore Laboratory, areas of responsibility include the Altamont Pass area to the city of Tracy boundaries and the eastern edge of the county (Alameda County Fire Department n.d.a).

Station 8, at 1617 College Avenue in the middle of Livermore, serves about 250 square miles of unincorporated rural area in east Alameda County and is responsible, in part, for the vast unincorporated area of the Altamont Pass. Station 8 is approximately 10 miles west of the project parcels. Typically, Station 8 would dispatch four engines, a 3,000-gallon water tender, and a battalion chief.

Engines hold 500–700 gallons of water and refill from the water tender (Berdan pers. comm.). If more water is needed, the water tender would locate the nearest fire hydrant, which, depending of where the fire is located, could be as far as the city of Livermore (Berdan pers. comm.). There are also 5,000-gallon water tanks on some of the properties in the Altamont Pass (Alameda County Fire Department n.d.b). Finally, if necessary, helicopters could retrieve water from several reservoirs (e.g., Bethany, Clifton Court Forebay, Los Vaqueros) in and near the APWRA (Berdan pers. comm.).

The ACFD has an automatic aid agreement with the Livermore/Pleasanton Fire Department (LPFD), which would respond together with the ACFD if needed (Berdan pers. comm.). There is also a mutual aid agreement between the ACFD and the Tracy Rural Fire Department (TRFD) for the areas east of Grant Line Road on the eastern edge of the county line (ACFD n.d.b).

Five general categories of fire origin are associated with wind generators: hardware and conductor failures of power collection lines, dropping of collection lines, turbine malfunction or mechanical failure, construction-related accidents, and avian related incidents.

Wildfires related to power collection lines and malfunction or mechanical failure of turbines can result from turbine overload, bearing overheating, or pendant cable failure; such incidents occur primarily on older units. (A pendant cable is a collection of low-voltage and communication cables, which drop through the top of the turbine support structure and connect to a weather head or junction box at a lower level on the tower.) If not properly maintained, these cables may twist and bind or rub and cause an electrical short, emitting sparks or flames. On unenclosed towers the sparks can escape the structure more easily. Avian-related incidents (i.e., electrocuted birds) involving birds catching fire and falling to the ground have also been a source of wind generator-related fires in the project area.

Fire prevention is required under the existing CUPs. Exhibit C of the 2005 CUPs describes the Altamont Pass Wind Farms Fire Requirements. The main mechanism for fire prevention is the maintenance of a 30-foot-wide firebreak around buildings and structures, including turbines, riser poles, and substations. Firebreaks around turbines may be constructed around a turbine string rather than individual turbines. Electrical lines require a 20-foot clearance of flammable vegetation. In Alameda County, this is accomplished by application of herbicide in October or November. A mechanism for fire prevention on turbines is the provision of a yaw damper or other approved method to prevent the over-twisting of pendant cables and the use of insulated and conductive materials to prevent avian electrocution. Exhibit C also requires year-round water supplies of at least 5,000 gallons to be provided for firefighting purposes in strategic locations throughout the subject project area as well as the preparation of an annual fire prevention plan. The fire prevention plan includes a map of facilities, water supply locations, and access routes.

In view of the fire hazard zoning and the state's jurisdiction over the project area related to fire protection, the statutory and regulatory public safety requirements to minimize the risk of wildland fire that are described above would apply to both the Initial and Full Repower phases of the project.

Blade Throw

One potential hazard of conventional wind turbine operation is blade throw. Blade throw can occur if all or part of a rotor blade detaches from the turbine, typically as a result of equipment failure or an extreme event such as lightning strike or high winds. The distance a blade is thrown depends on several factors: tower height, topography, blade or blade fragment length, rotor speed, wind speed, and departure angle (Larwood and van Dam 2006). Blade fragments have the potential to fly farther than complete blades because the initial velocity at failure tends to be higher for a fragment than for a full blade. In general, blade throw takes place predominantly in the plane of rotation, not downwind; however, because turbine nacelles turn to face the wind, the potential hazard zone is considered as a radius of the potential blade throw distance with the tower as center point. Blade throw studies generally assume wind turbines to be of conventional design (i.e. blades not encased.) The blades of the shrouded turbines are enclosed, similar to the design of jet engines, which may reduce the distance a blade could fly. Regardless, for the purposes of determining worst-case-scenario, the above-mentioned setback requirements will be used where applicable in this analysis.

The average wind turbine height of the proposed shrouded turbines would be less than 200 feet. Using the setback requirements above, the minimum distance to ensure safety from blade throw hazard would be 570–760 feet from buildings depending on elevation.

Radio Frequency Facilities

Wind turbines can interfere with communication or radar signals causing electromagnetic interference affecting television, radio, radar, and land mobile radio (LMR) systems when these signals are interrupted by the turbine structure or the rotor plane. Agencies whose operations could typically be affected by interference with radar or microwave telecommunications systems include the FAA, the Department of Defense, the Department of Justice, and the Department of Homeland Security. The operations of local public safety providers such as police departments, fire departments, and medical responders could also potentially be affected by the presence of wind turbines, because they often use LMR systems for communication.

A Radio Frequency (RF) Engineering Report (Appendix K) was prepared to assess the project's potential to interfere with RF. The report identified the locations of federally licensed (Federal Communications Commission [FCC]) microwave and fixed station RF facilities that could be adversely affected as a result of proposed project construction. The main purpose of the report was to determine if the potential siting of turbines in specific locations would cause RF interference.

Microwave Links

The RF Engineering Report considered the likely effect of the replacement wind turbines on existing microwave paths. Two microwave links, which are along the same path but transmit in opposite directions, have been identified that potentially would be affected by either the Initial or Full Repower. Although one proposed turbine would penetrate the path of these microwave links, further examination reveals that the microwave links were designed with insufficient ground clearance, resulting in the path being blocked by terrain. As a result, a turbine rotor sited as proposed would have no more substantial effect on the two microwave links than the total blockage caused by the terrain between the microwave transmitters and receivers.

Land Mobile and Public Safety Facilities

There are 18 land mobile and/or public safety stations identified within 2 miles of the project area. One land mobile station (WNNY861), is within 0.25 mile of a proposed turbine site.

Television Broadcast Facilities

Numerous television stations broadcast in the region, with a signal traversing at least a portion of the project area. The rotating blades of a wind turbine have the potential to disrupt over-the-air broadcast television reception within a few miles of the turbine, especially when the direct path from the viewer's residence is obstructed by terrain. However, this effect has been greatly reduced as many turbine manufacturers have replaced all-metal blades with blades constructed of mostly nonmetallic materials.

FM/AM Facilities and Cellular Towers

Numerous FM stations place a predicted primary signal over at least a portion of the project area. Due to the majority of FM radios' ability to factor-out time varying signals, the blade rotation of a turbine is not expected to interfere with FM signals.

Although metallic structures, such as wind turbines over 100 feet tall, can sometimes affect AM transmissions up to 1.86 miles away, no AM facilities are located within 1.86 miles of the project area.

Cellular phone service is mobile by design, and therefore mobile devices, theoretically, should not be significantly affected by the location of wind turbines. Cellular antennas employ multiple receivers to compensate for any disruptions at any one location. There is no credible evidence to suggest cellular reception is affected by wind turbines.

3.8.2 Environmental Impacts

This section describes the impact analysis relating to hazards and hazardous materials for the Initial Repower and Full Repower. It describes the methods used to determine the impacts of the project and lists the criteria used to conclude whether an impact would be significant. If applicable, measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methods for Analysis

The Initial Repower would involve the removal and replacement of 70–80 existing turbines with new shrouded wind turbines. The new turbines would be evaluated for their design functionality and an Avian Validation Study would be conducted to assess their ability to reduce bird mortality rates associated with the existing turbines. The next phase would involve the repowering of the remainder of the existing turbines (approximately 320–330) based on test results of the Avian Validation Study. The impact analysis evaluates the activities of removal and replacement of wind turbines in all phases.

The baseline for hazards and hazardous materials includes the hazards and hazardous materials that already exist in the area and which are identified in the Final Phase I Environmental Site Assessment (Appendix I). This section qualitatively analyzes the baseline for hazards and hazardous materials compared to the current and future changes on the project parcels.

Determination of Significance

Based on Appendix G of the State CEQA Guidelines, the analysis of hazards and hazardous materials should normally determine if a proposed project would result in any of the conditions listed below.

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area.

- Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impacts and Mitigation Measures

Initial Repower

Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (less than significant)

Construction of the Initial Repower would involve small quantities of commonly used materials, such as fuels and oils, to operate construction equipment. However, because standard construction BMPs would be implemented to reduce pollutant emissions during construction, this impact would be less than significant.

The majority of hazardous materials to be used during operations, decommissioning, and removal and reclamation activities—fuels, oils, and lubricants—are of low toxicity. As these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills involving the use of hazardous materials.

A small percentage (fewer than 10 percent) of generators to be removed could contain small amounts of asbestos (i.e., the 11-inch wire lead connection insulation/covering is made from asbestos). Additionally, in accordance with industry standards in practice at the time the turbines were built, the towers and nacelle machine components were likely originally coated with galvanized zinc, which contains trace amounts of lead. Disturbance of these materials could cause their release into the environment or endanger worker safety and health. However, wind turbines would be carefully disassembled and removed in a manner consistent with recycling and/or reselling the units. This procedure would help ensure that turbine components would not be damaged and release either lead or asbestos into the environment. The amount of lead and asbestos potentially encountered is very small and not likely to exceed lead or asbestos exposure levels in general construction regulations. Adherence to current BMPs designed to limit worker exposure to lead and/or asbestos would be implemented. These BMPs would be guided by OSHA's lead and asbestos standards as outlined in 29 CFR 1910.134 and 29 CFR 1926.1101.

Once construction is complete, there would be little use of hazardous materials or potential exposure associated with the Initial Repower phase. Dielectric fluid to be used in transformers is biodegradable, contains no PCBs, and is not considered a hazardous material. Accordingly, the potential for hazardous materials to endanger the public or the environment would be less than significant. No mitigation is required.

Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (less than significant)

Site workers, the public, and the environment could be inadvertently exposed to preexisting contaminants onsite during project construction. Small quantities of potentially toxic substances (such as petroleum and other chemicals used to operate and maintain construction equipment) would be used in the project area and transported to and from the area during construction. During operation, larger quantities (more than 55 gallons of liquid, 500 pounds of solids, or 200 cubic feet of compressed gases) of fuel could be stored in the project area. In addition, other petroleum products could be stored onsite. Release of these hazardous materials into the environment would be a significant impact.

However, the handling and disposal of these materials would be governed according to regulations enforced by CUPA, Cal/OSHA, and DTSC, as previously discussed. In addition, regulations under the CWA require contractors to avoid allowing the release of materials into surface waters as part of their SWPPP and NPDES permit requirements (see Chapter 9, *Hydrology and Water Quality*, for a discussion of the CWA and SWPPPs). This regulatory structure would ensure that safety measures and precautions are taken, thereby reducing any potential impacts associated with the accidental upset or release of hazardous materials. Accordingly, the impact due to potential hazards to the public or environment from upset or accident conditions involving hazardous materials would be less than significant. No mitigation is required.

Impact HAZ-3: Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (no impact)

There are no public or private K-12 schools within 0.25 mile of the project area. The nearest school is approximately 1 mile north of project facilities and it is unlikely that hazardous materials would be emitted or released within 0.25 mile of any schools. Also, implementation of the SWPPP by contractors would reduce the likelihood of a hazardous spill incident. There would be no impact. No mitigation is required.

Impact HAZ-4: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment (no impact)

The Phase I Environmental Site Assessment conducted for this project concluded that there are no significant risks of hazards to the public. The Phase I Environmental Site Assessment stated that no significant risk of environmental contamination is expected at any of the Initial Repower project parcels, nor is there any need for environmental cleanup of existing conditions. Additionally, none of the individual parcels associated with this project was listed on the databases searched for this report, including those compiled pursuant to Government Code Section 65962.5. There would be no impact. No mitigation is required.

Impact HAZ-5: Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area (no impact)

The closest public airport to the project area is the Byron Airport, located approximately 3.5 miles north of the project area. Because the project area is not within 2 miles of a public airport, implementation of the Initial Repower would not normally result in a safety hazard for people

residing or working in the project area. Furthermore, because the proposed turbines are less than 200 feet tall, issues related to airspace obstruction are unlikely. There would be no impact. No mitigation is required.

Impact HAZ-6: Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area (no impact)

The project area is approximately 6.5 miles northeast of the Meadowlark Airstrip. Because the project area is not within 2 miles of a private airstrip, the Initial Repower would not result in a safety hazard for people residing or working in the project area. Furthermore, because the proposed turbines are less than 200 feet tall, issues related to airspace obstruction are unlikely. Consequently, there would be no impacts associated with proximity to a private airstrip. No mitigation is required.

Impact HAZ-7: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (less than significant)

Existing vehicular traffic is associated with O&M of project facilities and is not anticipated to change under the Initial Repower. Accordingly, that aspect of the Sand Hill Wind Project would have no impact. During construction, there would be an increase in vehicular traffic transporting work crews, equipment, and materials. Conveyance of decommissioned turbines, towers, and other components on public roads would take place at an irregular, infrequent rate, and would be subject to standard Caltrans regulations. Such conveyance would not hinder emergency access to the project area. Accordingly, the Initial Repower would not conflict with any adopted emergency response plan or emergency evacuation plan. Projects proposed within the unincorporated area of the county are reviewed by the Alameda County Fire Department during the building permit process to ensure that they are consistent with adopted emergency response plans and emergency evacuation plans. This would reduce potential impacts to a less-than-significant level. Accordingly, the impact on implementation of adopted emergency response plans or emergency evacuation plans would be less than significant. No mitigation is required.

Impact HAZ-8: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (less than significant)

The project area consists primarily of grassland and grazing land. Dry climate conditions create circumstances rich with fuels, although active grazing, agricultural irrigation, and landscape irrigation provide some fuel reduction. Human activities are the primary reason wildfires start, although lightning strikes do occasionally occur. As discussed above, the most likely source of an ignition from the Initial Repower would be hardware and/or conductor failures of power collection lines, dropping of collection lines, turbine malfunction or mechanical failure, and avian-related incidents.

The repowering project with the new shrouded turbines would involve the removal of existing turbines and installation of new turbines in two phases. Decommissioning and removing existing wind turbines would require additional work crews, temporarily increasing the number of vehicles in the individual project parcels. Climate conditions together with the potential for vehicle-related ignitions make this a concern, especially during the summer months.

The potential for wildland fires already exists in the project area due to the presence of the wind energy facilities. Because CAL FIRE and ACFD already provide fire protection services to the area, the fire protection facilities and infrastructure required to protect the existing facilities are in place.

The Initial Repower would not alter the Altamont Pass Wind Farms Fire Requirements as described in Exhibit C of the 2005 CUPs. Consequently, the potential for exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires is less than significant. No mitigation is required.

Impact HAZ-9: During normal operation, the effects of bending and stress on rotor blades over time could lead to blade failure and become a potential blade throw hazard (less than significant)

As discussed above, a potential hazard of conventional wind turbine operation is blade throw, which results when all or part of a rotor blade detaches from the turbine, typically as a result of equipment failure or an extreme event such as a lightning strike or high winds. The shrouded turbines, however, are of a design that more closely resembles a jet engine. Specifically, the turbine apparatus includes an electrical generator and wind rotor (blades) surrounded by two shrouds. Although the main purpose of the shrouds is to channel air to the rear of the turbine to improve the efficiency of energy production, the shrouds also serve to contain the blades in the event of a blade or blade fragment failure. The effectiveness of this type of blade containment can be seen in blade off testing which is routinely conducted for jet engines (US Printing Office 2013). Blade off tests require engine manufacturers conduct tests to make sure that an engine can survive a compressor or fan blade breaking off within the engine and a turbine blade breaking off within the engine without fragments being thrown through the engine's outside enclosure. Because the proposed shrouded turbines would be of similar design, the shroud would be expected to block a blade or blade fragments if a break were to occur, thereby preventing a blade or blade fragment from being thrown a distance from the turbine. Accordingly, the potential for exposure of people or structures to a significant risk of loss, injury, or death involving blade throw is less than significant. No mitigation is required.

Impact HAZ-10: Because of their large size and proposed location, the proposed turbines have the potential to interfere with microwave, radar, and communications signals and be a hazard to public safety (less than significant)

As discussed above, wind turbines can interfere with communication or radar signals causing electromagnetic interference affecting television, radio radar, and LMR systems. The operations of local public safety providers such as police departments, fire departments and medical responders could also be affected because they often use LMR systems for communication. Interference with these signals would be a significant impact. However, the RF Engineering Report prepared for the Sand Hill Wind Project (Appendix K), found that the proposed project would not result in any significant effects on communication or radar signals. Two microwave link paths that fall in line with a proposed turbine are also blocked by terrain. Therefore, installation of a turbine would not cause a greater impediment to the signal.

One land mobile station operates on 530 kHz, in the groundwave portion of the RF spectrum, and as such, does not depend on a clear line of sight between transmitter and receiver for successful communication. Thus, the proposed wind turbines would not cause an obstruction to the transmissions of station WNX Y861. Thus, wind turbines would not cause an obstruction to the transmissions of station WNX Y861.

The rotating blades of a wind turbine have the potential to disrupt over-the-air broadcast television reception within a few miles of the turbine, especially when the direct path from the viewer's residence is obstructed by terrain. However, this effect has been greatly reduced as many turbine manufacturers have replaced all-metal blades with blades constructed of mostly nonmetallic materials. Therefore, wind turbines would not significantly affect television signals.

Other communication signals and radio broadcasts would not be affected because the height and size of the rotors would not change significantly. Consequently, impacts associated with RF interference would be less than significant.

A search of the FCC registered antenna structures database identified 17 registered communications towers located within 15 miles of the project area, the closest approximately 1.5 miles away. The Initial Repower would not be expected to cause any turbine-related signal transmission problems to nearby multi-directional transmitting facilities located at any of the above registered tower sites, since the closest one is 1.24 miles away from the nearest proposed turbine.

No land mobile transmitting stations are expected to be adversely affected, assuming that their transmitters are located exactly as per their FCC licenses. Cellular telephone transmission and reception also would not be adversely affected by the repowering project.

The potential impact on interference with microwave, radar, or communication signals would be less than significant. No mitigation is required.

Full Repower

As previously discussed, under the Full Repower phase, the Applicant, using the test results of the Avian Validation Study and shrouded turbine performance data, would replace the remainder of the existing turbines (approximately 320–330 turbines) in future phases. In regards to hazards and hazardous materials, these impacts would essentially remain the same except on a larger scale and for a longer duration.

Impact HAZ-1[F]: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (less than significant)

Construction of the Full Repower would involve small quantities of commonly used materials, such as fuels and oils, to operate construction equipment. However, because standard construction BMPs would be implemented to reduce pollutant emissions during construction, this impact would be less than significant.

The majority of hazardous materials to be used during operations, decommissioning, and removal and reclamation activities—fuels, oils, and lubricants—are of low toxicity. As these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills involving the use of hazardous materials.

A small percentage (fewer than 10 percent) of generators to be removed could contain small amounts of asbestos (i.e., the 11-inch wire lead connection insulation/covering is made from asbestos). Additionally, in accordance with industry standards in practice at the time the turbines were built, the towers and nacelle machine components were likely originally coated with galvanized zinc, which contains trace amounts of lead. Disturbance of these materials could cause their release into the environment or endanger worker safety and health. However, wind turbines would be carefully disassembled and removed in a manner consistent with recycling and/or reselling the units. This procedure would help ensure that turbine components would not be damaged and release either lead or asbestos into the environment. The amount of lead and asbestos potentially encountered is very small and not likely to exceed lead or asbestos exposure levels in general construction regulations. Adherence to current BMPs designed to limit worker exposure to lead and/or asbestos would be implemented. These BMPs would be guided by OSHA's lead and asbestos standards as outlined in 29 CFR 1910.134 and 29 CFR 1926.1101.

Once construction is complete, there would be little use of hazardous materials or potential exposure associated with the Full Repower phase. Dielectric fluid to be used in transformers is biodegradable, contains no PCBs, and is not considered a hazardous material. Accordingly, the potential for hazardous materials to endanger the public or the environment would be less than significant and no mitigation is required.

While impacts related to the routine transport, use, or disposal of hazardous materials would be somewhat greater under the Full Repower, the existing BMPs and the existing regulatory scheme would still keep impacts to a less-than-significant level. No mitigation is required.

Impact HAZ-2[F]: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (less than significant)

Whether repowering 40 or 300 wind turbines, BMPs would be implemented to reduce the potential for or exposure to accidental spills involving the use of hazardous materials, including lead and/or asbestos. These BMPs would apply both during construction and operation of the Full Repower. In addition to BMPs, handling and disposal of any hazardous materials would be governed according to regulations enforced by CUPA, the Cal/OSHA, and the DTSC, as previously discussed. However, it should be noted that impacts related to hazards and hazardous materials potentially being released into the environment would be somewhat greater under the Full Repower. While the same BMPs and regulations would be adhered to, the greater magnitude of the Full Repower increases the potential for accidents and protocol failures. Therefore, the potential for hazardous materials release or exposure of the environment or humans to hazards would be greater under the Full Repower phase. However, BMPs and the existing regulatory scheme would still keep impacts to a less-than-significant level. No mitigation is required.

Impact HAZ-3[F]: Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (no impact)

There are no public or private K-12 schools within 0.25 mile of the project area. The closest airport to the project area is 3.5 miles and the project parcels are not within the airport land use plan. Hazards relating to the project area's proximity to schools, and public and private airports, would not be considered significant under the Full Repower. There would be no impact. No mitigation is required.

Impact HAZ-4[F]: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment (no impact)

The Phase I Environmental Site Assessment conducted for this project concluded that there are no significant risks of hazards to the public. The Phase I Environmental Site Assessment stated that no significant risk of environmental contamination is expected at any of the project parcels, nor is there any need for environmental cleanup of existing conditions. Additionally, none of the individual parcels associated with the Full Repower was listed on the databases searched for this report, including those compiled pursuant to Government Code Section 65962.5. There would be no impact. No mitigation is required.

Impact HAZ-5[F]: Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area (no impact)

The closest public airport to the project area is the Byron Airport, located approximately 3.5 miles north of the project area. Because the project area is not within 2 miles of a public airport, implementation of the Full Repower would not normally result in a safety hazard for people residing or working in the project area. Furthermore, because the proposed turbines are less than 200 feet tall, issues related to airspace obstruction are unlikely. There would be no impact. No mitigation is required.

Impact HAZ-6[F]: Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area (no impact)

The project area is approximately 6.5 miles northeast of the Meadowlark Airstrip. Because the project area is not within 2 miles of a private airstrip, the Full Repower would not result in a safety hazard for people residing or working in the project area. Furthermore, because the proposed turbines are less than 200 feet tall, issues related to airspace obstruction are unlikely. Consequently, there would be no impacts associated with proximity to a private airstrip. No mitigation is required.

Impact HAZ-7[F]: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (less than significant)

Impacts associated with emergency response plans are temporary and would also remain the same under the Full Repower. Through the building permit process, notification of project plans to the Alameda County Fire Department is required for any project, including repowering efforts. Once complete, Full Repower vehicle traffic would be associated with maintenance of project facilities and is not anticipated to change. Accordingly, the impact on implementation of adopted emergency response plans or emergency evacuation plans would be less than significant. No mitigation is required.

Impact HAZ-8[F]: Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands (less than significant)

Full repowering would involve the removal of existing turbines and installation of new turbines. Adherence to the Exhibit C of the 2005 CUPs as well as existing fire prevention facilities would continue to reduce wildland fire hazards. The potential for wildland fires already exists within the project area due to the presence of the wind energy facilities currently onsite. Because CAL FIRE and ACFD already provide fire protection services to the area, the fire protection facilities and infrastructure required to protect the existing facilities are in place. The Full Repower would not alter the Altamont Pass Wind Farms Fire Requirements as described in Exhibit C of the 2005 CUPs. Consequently, the potential for exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires is less than significant. No mitigation is required. .

Impact HAZ-9[F]: During normal operation, the effects of bending and stress on rotor blades over time could lead to blade failure and become a potential blade throw hazard (less than significant)

The Full Repower would involve a greater number of turbines than the Initial Repower. As a result, the potential for blade throw could increase. However, the Full Repower would reduce the total number of existing wind turbines in the project area because of the greater individual nameplate capacity of the new turbines. Thus, reducing the number of turbines would also reduce the potential for wind turbine-related hazards.

The potential for blade throw would increase proportionally beyond that of the Initial Repower as more wind turbines would be involved under the Full Program. However, the overall number of turbines would not increase beyond existing conditions and could decrease. Also, just as for the Initial Repower, the Full Repower would occur within windfarm boundaries—not in areas accessible to the public. This strict control of public access would further reduce the risk of potential blade strike within the project area.

Lastly, as discussed above, the wind turbines proposed for the Full Repower are shrouded and of a design that would contain or block a blade or blade fragments from being thrown away from the turbine. Accordingly, the potential for exposure of people or structures to a significant risk of loss, injury, or death involving blade throw is less than significant. No mitigation is required.

Impact HAZ-10[F]: Because of their large size and proposed location, the proposed turbines have the potential to interfere with microwave, radar, and communications signals and be a hazard to public safety (less than significant)

The RF Engineering Report prepared for the proposed project analyzed potential impacts to RF for the entire project area. And, as discussed above, while wind turbines can interfere with communication or radar signals causing electromagnetic interference affecting television, radio radar, and LMR systems, the report did not identify any significant effects from implementation of the proposed project under the Full Repower to communication or radar signals. Consequently, impacts associated with RF interference would be less than significant. No mitigation is required.

3.8.3 References Cited

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