3.13 Risk of Accidents, Hazardous Materials, and Safety

This section addresses the potential for safety impacts from the wind turbine generators (WTGs), electromagnetic fields (EMF) from the 115-kilovolt (kV) power line, worker safety, and the use of hazardous materials.

3.13.1 Existing Conditions

The Project would be located primarily on rural, agricultural land. VAFB is located to the south and west, and private property is on the north and east of the Project area. Private residences and structures are located on non-Project properties. The closest residence (on non-Project property) to a proposed turbine corridor is approximately 1,000 feet east of the Larsen property. There are also residences near the proposed power line route along San Miguelito Road, south of the City of Lompoc along SR-1, and in the vicinity of the LWEF. San Miguelito Road and Sudden Road (which intersects San Miguelito Road near the proposed O&M building) are accessible to the public.

3.13.1.1 Tower Integrity and Rotor Failure

Public safety issues related to wind energy facilities are primarily associated with the potential for tower collapse or rotor failure and blade throw (separation of the blade from the rotor). Excessive static stress, material fatigue, seismic activity, or ground settling can cause tower failure, collapse, or both. The likelihood of tower failure from excessive stress or material fatigue is very low, and tower collapse is uncommon. Until recently, there was no documented collapse of a tubular tower wind turbine. In Weatherford, Oklahoma, in 2005, a 300-foot wind turbine tower broke in half and collapsed (United States Department of Energy, 2005); however, no injuries occurred. (Tower collapse resulting from geologic hazards such as earthquakes and ground shaking is discussed is Section 3.9, Geology/Soils.)

If a WTG experiences excess speed, material fatigue, excessive stresses, or vibration from seismic ground shaking, there is the potential for a rotor blade to crack or dislocate from the turbine tower. Blade failures may occur due to extremely high winds and excess rotor speed. Most commercial turbines are currently equipped with safety and engineering features to prevent excess rotor speed. Acts of vandalism, such as gun shots, could conceivably damage rotor blades causing a blade fragment to be thrown, but vandalism has not been reported in the Project area (D. Allen, Personal Communication).

Under certain conditions, ice can form on wind turbine towers and rotor blades, and blade icing and ice throw are a risk at some locations. Moving rotor blades are subject to heavier buildups of ice than stationary structures through the mechanism of rime icing. Rime icing occurs when a subfreezing structure is exposed to moisture-laden air with significant velocity. If the ice then becomes detached while the blades are rotating, there is the possibility of "ice throw" over a considerable distance from the turbine. The Project area has a generally mild climate, and extreme cold or freezing temperatures are rare.

3.13.1.2 Electromagnetic Fields

Existing power lines and distribution lines are present in the Project area along the residential area on San Miguelito Road just south of the City of Lompoc Lompoc and along

SR-1 just south of the City of Lompoc. For the purposes of this analysis, the primary distribution lines were assumed to be 12 kV for all residential areas. In addition, an existing 115-kV power line servicing the Celite facility runs along State Route 1 (SR-1), east of existing residences. These power and distribution lines are in the vicinity of the Project power line. The electrical effects of high-voltage transmission lines fall into two broad categories: corona and field effects.

Corona Effect

This is the ionization of air that occurs at the surface of the energized conductor and suspension hardware due to very high electric field strength at the surface of the metal during certain conditions. Corona could result in radio and television reception interference, audible noise, light, and production of ozone. Corona is a function of the voltage of the line, the elevation of the line above sea level, the diameter of the conductor (actual line or bundle of conductors), the spacing and arrangement of the conductors, and the condition of the conductor and hardware.

Field Effect

Field effects are the voltages and currents that could be induced in nearby conducting objects. Operating power lines, like the energized components of electrical motors, home wiring, lighting, and all other electrical appliances, produce electric and magnetic fields, commonly referred to as EMF. The EMF produced by the alternating current electrical power system in the United States has a frequency of 60 Hertz (Hz), meaning that the intensity and orientation of the field changes 60 times per second.

Power line fields of 60 Hz are considered to be extremely low frequency. They have a wavelength of 3,100 miles and have very low energy that does not cause heating or ionization. Other common frequencies are AM radio, which operates at up to 1,600,000 Hz (1,600 kilohertz); television, 890,000,000 Hz (890 megahertz [MHz]); cellular telephones (900 MHz); microwave ovens, 2,450,000,000 Hz (2.4 gigahertz); and X-rays, approximately 1 billion Hz. Higher frequency fields have shorter wavelengths and greater energy in the field. Microwave wavelengths are a few inches long and have enough energy to cause heating in conducting objects. High frequencies, such as X-rays, have enough energy to cause ionization (breaking of atomic or molecular bonds).

Electric Fields

Electric fields around transmission power lines are produced by electrical charges on the energized conductor. Electric field strength increases in strength with the line voltage and decreases as one moves farther away. The strength of the electric field is measured in kilovolts per meter (kV/m).

Magnetic Fields

Magnetic fields around transmission power lines are produced by the amount of current flow, measured in terms of amperes, through the conductors. The magnetic field strength also increases as current flow increases and diminishes as one moves farther from the conductors. Magnetic fields are measured in milligauss (mG).

As discussed in the County of Santa Barbara Environmental Thresholds and Guidelines Manual (ETGM) (County of Santa Barbara, 1992), studies regarding extremely low

frequency EMF exposure to date have primarily been focused in three categories. These include cellular level studies, whole animal and human studies, and epidemiological studies. Cellular level studies have been focused on calcium efflux, cancer promotion, endocrine secretion and immune response. Animal and human studies have been focused on the nervous system, behavior patterns, reproduction and development, and cancer progression. Epidemiological studies have looked at the association between human exposure to EMF produced by power systems and human cancers occurring in children, adults and workers in occupations where extensive exposure to EMF is an issue. Some studies in each of these three categories provide some evidence that 60-Hz magnetic fields can produce biological effects.

Additionally, various agencies of the U.S. Government have conducted investigations into EMF related to power lines and health risks, however, no national standards have been established for non occupational exposure. The number of studies sponsored by the U.S. Government, the Electric Power Research Institute (EPRI), and other institutions has decreased dramatically in the past few years. The once robust federally sponsored EMF research program has now been terminated by Congress.

In 1999, the National Institute of Environmental Health Sciences (NIEHS) reported to the United States Congress that evidence supporting EMF exposure as a health hazard was insufficient to warrant aggressive regulatory actions. The report did suggest passive measures to educate the public and regulators on means aimed at reducing exposures. NIEHS also suggested that the power industry continue its practice of siting lines to reduce exposures and to explore ways to reduce the creation of magnetic fields around lines. (NIEHS, 1999). Other, recent reviews of the scientific literature also indicate that there is no demonstrated biological mechanism linking EMF exposure to an adverse disease outcome and that it is unlikely that exposure to the level of EMF produced by this Project would be harmful (National Academy of Sciences, 1999).

As this extensive research offers no uniform conclusions about whether or not long-term exposure to EMF has harmful biological or human health effects, the State of California has chosen not to specify maximum acceptable levels of EMF but mandates a program of prudent avoidance. Exposure by the public to EMF should be minimized by electric utilities using low-cost techniques to reduce the levels of EMF.

3.13.1.3 Utility/Turbine Interface and Worker Safety

Utility and turbine workers operating on wind turbines or power lines are at risk of electrical shock from either of the systems. To avoid potential electrical shock, turbines and utility lines are typically equipped with automatic- and manual-disconnect mechanisms. There is also potential for direct impacts to the public resulting from contact with energized equipment. The Project area has existing power and distribution lines and, therefore, includes these related risks.

3.13.1.4 Hazardous Materials

The principal uses of the Project area are cattle grazing and dry land farming. The activities associated with these uses that have the greatest potential for the release of hazardous wastes or materials into the soil or groundwater include repair, storage, and refueling of trucks and equipment; storage and disposal of equipment, fuel, lubricants, solvents, and

batteries; and mixing and storage of herbicides and pesticides. These activities are almost always restricted to the immediate vicinity of permanent structures or roads because they require the use of a water supply, shelter from the elements, or vehicle access.

The Project area is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (California Department of Toxic Substances Control, 2006).

3.13.2 Regulatory Framework

3.13.2.1 Federal

The National Electric Manufacturers Association (NEMA) and the American National Standards Institute (ANSI) set safety standards for wind generation equipment. The National Electric Safety Code (NESC) covers basic provisions for safeguarding persons from hazards arising from the installation, operation, or maintenance of electrical systems.

3.13.2.2 State

The California Office of Safety and Health and Administration (Cal-OSHA) sets standards for WTGs. In addition, Cal-OSHA protects workers and the public from safety hazards according to its occupational health and safety laws.

While the State of California does not set a statutory limit for electric and magnetic field levels, the California Public Utilities Commission (CPUC), which regulates electric transmission lines, mandates EMF reduction as a practicable design criterion for new and upgraded electrical facilities. As a result of this mandate, the regulated electric utilities have developed their own design guidelines to reduce EMF at new facilities (CPUC 2006a; 2006b; 2007).

3.13.2.3 Local

A Hazardous Materials Business Plan would be required by the Santa Barbara County Fire Department (SBCFD). The Hazardous Materials Business Plan would include procedures for storage, use and handling; emergency response procedures; employee training; spill reporting; and record keeping.

The County does not have any specific policies related to determining EMF impacts. While some evidence supports the possibility that there may be some biological effects which may result from low frequency EMFs, there are no standards or guidelines to govern the public's involuntary exposure to extremely low frequency (EMFs). Some jurisdictions throughout the nation and internationally have tried to address the problem by establishing setbacks based upon field strengths from high voltage power lines. However, none of the setbacks established are based on any causal relationship between field strengths and adverse health effects.

Other aspects of the Project's safety procedures are subject to the policies and regulations of Santa Barbara County. Section 3.10, Land Use, provides a discussion of the relevant Santa Barbara County Comprehensive Plan policies and an analysis of Project consistency with those plans and policies. The Santa Barbara County Land Use & Development Code also includes provisions for wind turbine safety.

3.13.3 Project Impacts, Mitigation, and Residual Impacts

3.13.3.1 Impact Assessment Methodology

To determine the impacts of the Project, an analysis of the potential risks and safety issues (including those related to hazardous materials) resulting from Project implementation was completed.

3.13.3.2 Thresholds of Significance

The County of Santa Barbara Environmental Thresholds and Guidelines Manual (County, 2006) identifies thresholds of significance for use in determining the significance of project impacts. The manual identifies Public Safety thresholds of significance; however, those thresholds focus on involuntary public exposure to acute risks that stem from certain types of activities with significant quantities of hazardous materials (such as oil and gas facilities and handling and storage of radioactive fuel) and do not pertain to the Project.

In addition, as discussed in the manual, thresholds were established for radiofrequency radiation; however, given the current information regarding potential health impacts and the uncertainty surrounding these impacts, no threshold was adopted for extremely low frequency EMFs. Standards for EMFs are based upon the measurements of kV/m for electric fields, and mG for magnetic fields. At the present time, most attempts at establishing standards have focused on the limitation of magnetic fields since it is generally impossible to shield individuals from these fields and the more recent concern about health effects was related to magnetic fields. In general, it is relatively easy to shield individuals from electric fields as they do not readily penetrate buildings, structures, fencing, trees, etc.

Several states have adopted limits of electric field strength within transmission line ROWs. Florida and New York are the only states that currently limit the intensity of magnetic fields from transmission lines. These regulations include limits within the ROW for electric fields as well as at the edge of the power line right of way for both electric and magnetic fields and cover a broad range of values. The magnetic field limits were based on an objective of preserving the status quo and preventing field levels from increasing beyond levels currently experienced by the public until such time as the science was better understood and were not based upon any demonstrated link between exposure to EMF and health effects (NIEHS, 2002).

Elsewhere in the United States, several agencies and municipalities have taken action regarding EMF policies. These actions have been varied and include requirements that the fields be considered in the siting of new facilities. The manner in which EMF is considered has taken several forms. In a few instances, a concept referred to as "prudent avoidance" has been adopted. Prudent avoidance, a concept proposed by Dr. Granger Morgan of Carnegie-Mellon University, is defined as "...limiting exposures which can be avoided with small investments of money and effort." (Morgan, 1991) Some states, municipalities or regulating agencies have proposed limitations on field strength, requirements for siting of lines away from residences and schools, and, in some instances, moratoria on the construction of new power lines.

As a result, the County Board of Supervisors directed staff to evaluate exposure on a case-by-case basis using the most current scientific data. Thus, the following thresholds of

significance, based primarily upon Appendix G of the CEQA Guidelines, were used to assess the impacts of the Project.

The Project may have a significant impact if it would:

- Expose people or structures to a significant risk of loss, injury, or death by construction or operation of the Project
- 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 that may involve the release of hazardous materials into the environment

3.13.3.3 Project Impacts

Impact No.	Impact Description	Phase	Impact Classification
RISK-1	Risk to the public from WTG collapse would be limited, though one or two WTGs could be located within 500 feet of a short segment of road with light traffic. The Project is expected to present a low risk of blade throw; nonetheless, a risk exists.	Operations	Class II

Impact RISK-1: Tower Failure and Blade Throw. The probability of structural failure of a WTG is considered to be very low. Failure of a WTG tower at its base, or of its anchorage to the foundation, would create a hemispherical hazard zone with a radius approximately equal to turbine tip height as illustrated in Figure 3.13-1, Inset A. Under the reasonable worst-case scenario, the WTGs associated with the Project could be as tall as 492 feet. In the unlikely event of a turbine tower collapse, the potential risk to the public would be extremely limited since all of the WTGs would be located on private property. Most of the turbine corridors are more than 500 feet away from publicly accessible San Miguelito Road and Sudden Road. In addition, the closest nonparticipating residence is over 1,500 feet from the closest proposed turbine corridor.

However, a short segment of San Miguelito Road, northwest of the Project Substation and O&M facility location, crosses the turbine corridor; and several WTGs could be located within 500 feet of the roadway. San Miguelito Road, a rural roadway, has light traffic with an ADT of only 1,868 vehicles per day in the vicinity of the City of Lompoc boundary. The segment of San Miguelito Road crossing the turbine corridor would have a considerably lower traffic level. It is approximately 7 miles from the city limits and beyond Miguelito County Park. Past the park, a very limited number of residences are accessed via San Miguelito Road. Nonetheless, a risk exists, and the impact to public safety would be significant but mitigable (*Class II*).

The Project is expected to present a low risk of blade throw (illustrated in Figure 3.13-1, Inset B), because all of the WTGs would be located on private property in a remote rural area with limited public access and usage; nonetheless a risk exists, and the impact would be significant but mitigable (*Class II*).

Impact No.	Impact Description	Phase	Impact Classification
RISK-2	Blade icing and ice throw would not be expected to occur; additionally, there would be limited human activity in the Project area.	Operations	Class III

Impact RISK-2: Blade Icing and Ice Throw. Risks from blade icing and ice throw are illustrated in Figure 3.13-2, Inset C. Because the Project area is located in a region with a generally mild climate, and extreme cold or freezing temperatures are very rare, blade icing and ice throw would not be expected to occur. Additionally, the Project would result in low risk because most of the WTGs would be located on private property, VAFB provides a buffer and public exclusion zone, and the overall Project area is rural with limited human activity. Impacts from blade throw, blade icing, and ice throw would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
RISK-3	Electromagnetic fields are a possible issue when associated with the siting of high voltage overhead power lines or cables less than 200-feet from residences,	Operations	Class II

Impact RISK-3: Electromagnetic Field Effect. Each array of WTGs would be interconnected via 34.5-kV electrically insulated cables. These cables would typically run underground. However, should a collection line need to cross a canyon or environmentally sensitive areas, such as the location of springs or an archaeological site or where a line runs down from a hill to the Project Substation, standard overhead lines would be used. At the Project Substation, the voltage would be stepped up to 115 kV for interconnection to the Project power line. The step-up transformer would be within a fenced enclosure and not accessible to the public. EMF is not an issue of concern related to WTGs, which have a predominately underground low voltage (34.5-kV) collection system. In addition, residences located in the vicinity of the proposed WTGs and associated collection system are well beyond any potential impact zone.

Exposure to electromagnetic fields is a possible issue when associated with the siting of high voltage (115-kV) overhead power lines in close proximity to residences. The proposed power line runs close to several residences potentially exposing residents to EMF. These include two residences on upper San Miguelito Road near the LWEF site, a number of residences adjacent to San Miguelito Road (from 1259 to 1441 San Miguelito Road), and one residence on Somerset Place in Lompoc, near where the proposed power line would cross over SR-1. Based upon recent studies and EMF modeling of similar power lines, at a distance of 200 feet or more from a 115-kv line, the EMF levels are expected to be very low and will likely be lower than the expected EMF levels created from electrical wiring and appliances used within the residences and the distribution lines serving these residences (NIEHS, 2002 and Pearson, 2007, Personal Communication). Further, the power line would comply with the NESC standards that establish safeguards for persons during the installation, operation, or maintenance of electric supply lines and associated equipment.

The proposed 200-foot power line corridor would provide flexibility in siting to ensure that a minimum 200-foot setback is maintained. While there are no adopted thresholds for setbacks as discussed above, it is expected that through compliance with NESC standards and the incorporation of prudent avoidance measures, EMF exposure will be minimized below exposure levels people typically experience in their daily routines. However, in order to be conservative, where the power line route is 200 feet from residences, potential EMF exposure impacts to these residents would be considered significant but mitigable (*Class II*) to less than significant levels.

Impact No.	Impact Description	Phase	Impact Classification
RISK-4	Utility and turbine workers would be exposed to a number of risks, including electrical shock and falls. There is also risk to members of public who incidentally or intentionally enter the Project site.	Construction and Operations	Class III

Impact RISK-4: Utility/Turbine Interface and Worker Safety. Utility and turbine workers attending to WTGs or utility components of the Project would be exposed to a number of risks including electrical shock and falls. There is also the potential for incidental or intentional entry into Project site by members of the public and subsequent risk to human health.

The Project contractor and each subcontractor would be responsible for construction health and safety issues and would provide a Health and Safety Coordinator who would ensure that all laws, ordinances, regulations, and standards concerning health and safety issues were complied with. A Project construction procedures manual would be submitted prior to any site construction activity for review and approval. The manual would describe how the contractors would implement and maintain health and safety compliance programs and integrate their activities with the other contractors during all phases of the work.

During the operational phase of the Project, an onsite staff of approximately 10 would be employed. They would be headquartered at the O&M facility and travel around the site as needed. Staff may not be present at the site 24 hours per day. However, operations would be continuously monitored through the Supervisory Control and Data Acquisition (SCADA) system from remote locations. Standard operating procedures and employee training relating to safety, potential emergency situations, and potential malfunctions would cover emergency evacuation, emergency response, safety, electrical equipment failures, fire prevention and control, mechanical malfunctions, notification procedures, maintenance activities and schedules. Overall, impacts to worker safety would be adverse, but less than significant (*Class III*).

The potential for direct risks to the public resulting from contact with energized equipment or other accidents in the Project area would be minimal because they would have limited access to the Project areas. The proposed facilities are located on private property (except for the section of the 115-kV power line that follows San Miguelito Road and SR-1). Safety signing would be posted around all WTGs, transformers, and other high voltage facilities, and along roads, consistent with the safety program. Impacts would be adverse, but less than significant (*Class III*).

Impact No.	Impact Description	Phase	Impact Classification
RISK-5	Accidental spills or leakage of hazardous materials could occur, including fuels (gasoline and diesel), lubricants, motor oil, and paints.	Construction and Operations	Class III

Impact RISK-5: Release of Hazardous Materials. Hazardous materials associated with the implementation of the Project would include fuels (gasoline and diesel), lubricants, motor oil, and paints. Accidental spills or leakage could occur, but Project would be required to comply with all regulatory requirements, including an approved Hazardous Materials Business Plan (Section 3.13.2.3).

Construction equipment and trucks would be properly maintained to minimize leaks of motor oils, hydraulic fluids, and fuels. Major vehicle maintenance would be performed offsite at an appropriate facility. Gasoline- and diesel-powered vehicles and equipment would be refueled onsite at designated locations by a mobile fuel service truck. The risks associated with driving fuel trucks along roads at the Project site would be low, because the roads can safely accommodate fuel trucks.

Hazardous and potentially hazardous chemicals (such as oil, grease, and ethylene glycol) would be used to lubricate and cool the WTGs and ancillary facilities. Gearboxes would each contain approximately 70 gallons of oil that would not be routinely replaced. The yaw system bearings and control gears would be greased and the hydraulic oil would be checked and renewed approximately every 5 years with 5 gallons of oil. The cooling system would contain water and ethylene glycol that would be tested annually. All testing or replacement would be performed uptower; therefore all fluids including those from accidental spills would be contained within the confines of the nacelle and the tower structures. Additionally, the WTG models that would be installed under the Project would be equipped with leak-proof gaskets. However, these chemicals would need to be transported to the Project site, and some quantities would be stored onsite at the O&M facility. To minimize the potential for harmful effects to people or the environment, stored chemicals would be held in onsite tanks or drums equipped with secondary containment areas to prevent runoff. It is anticipated that no hazardous materials would be produced, used, stored, transported, or disposed of as a result of the Project.

The Project would include a Project Substation with step-up transformers, and there is the risk of spills of hazardous materials. However, the Project Substation area would be graded to provide for containment in the event of equipment failure, and the Project would comply with all pertinent CPUC requirements.

If cleaning chemicals or detergents were utilized, they would generally be biodegradable and would be stored in the O&M facility in sealed containers. Oils that may be needed for normal maintenance would be stored in drums or smaller sealed containers at the O&M facility and transported to the turbines when needed.

Impacts from the accidental release of hazardous materials associated with construction or operation of the Project would be adverse, but less than significant (*Class III*), because all regulatory requirements would be met.

3.13.3.4 Applicant-proposed Mitigation Measures

The following Applicant-proposed mitigation measures are considered part of the Project description. They have been refined to reflect the County Standard Conditions of Approval and Mitigation Measures (Santa Barbara County, 2005), related to adding plan requirements, timing, and monitoring actions that would be required. They would reduce impacts to the maximum extent feasible.

Mitigation Measure A-RISK-1. The Applicant shall prepare a Hazardous Materials Management Plan that meets SBCFD requirements.

Plan Requirements: A copy of the plan shall be provided to the SBCFD and the County.

Timing: The plan shall be provided prior to zoning clearance for the first phase of construction.

MONITORING: The County staff will verify the completion and approval of the plan prior to zoning clearance for the first phase of construction *(Addresses Impact RISK-5).*

Mitigation Measure A-RISK-2. Refueling vehicles shall have a sign listing pertinent contacts to notify in the event of a spill.

Requirements: A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing: The notification shall be provided prior to zoning clearance for the first phase and all subsequent phases of construction.

MONITORING: County staff will verify the notification prior to zoning clearance for the first phase and all subsequent phases of construction and confirm compliance during construction *(Addresses Impact RISK-5).*

Mitigation Measure A-RISK-3. All equipment shall be adequately maintained to minimize operational losses of hazardous materials and to reduce the risk of accidental spillage.

Requirements: A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing: The notification shall be provided prior to zoning clearance for the first phase and all subsequent phases of construction.

MONITORING: The County staff will verify the notification prior to zoning clearance for the first phase and all subsequent phases of construction and compliance confirmed during construction *(Addresses Impact RISK-5)*.

Mitigation Measure A-RISK-4. Construction fueling shall be designated such that sensitive areas are avoided.

Requirements: A copy of the notification to all contractors regarding this requirement shall be provided to the County.

Timing: The notification shall be provided prior to zoning clearance for the first phase and all subsequent phases of construction.

MONITORING: The County staff will verify the notification prior to zoning clearance for the first phase and all subsequent phases of construction and confirmed during construction *(Addresses Impact RISK-5)*.

3.13.3.5 Additional Mitigation Measures

In addition to the Applicant-proposed mitigation measures, the following additional mitigation measures will be implemented to ensure that Project impacts related to WTG tower failure and blade throw and EMF exposure are mitigated to levels below established thresholds.

Mitigation Measure RISK-1: Tower Failure and Blade Throw. WTGs shall not be sited within 500 feet of a public road. (Note that this requirement would prevent siting of WTGs along the southern portion of the Middle turbine corridor as shown on Figure 2-2. However, if San Miguelito Road and Sudden Road were converted to private roads beyond their intersection [Section 2.6.4], siting of WTGs would be restricted but not prevented in this area.)

Plan Requirements: This requirement shall be included as a note on final design plans showing the WTG layout.

Timing: The final plans shall be provided to the County for approval.

MONITORING: County staff will approve the final plans and confirm compliance during construction *(Addresses Impact RISK-1)*.

Mitigation Measure RISK-2: Electromagnetic Field Effect Reduction. The 115-kV power line shall be constructed with low-cost EMF reduction measures incorporated where the line is located less than 200 feet (ground distance) from residences or other occupied structures. These measures may include siting the power lines 200 feet or more from residences, or designing the lines with a phase conductor placement on the towers that minimizes EMF exposure. The measure shall conform to those described in California Public Utilities guidelines (2006a, [EMF Design Guidelines for Electrical Facilities]).

Plan Requirements: This requirement shall be shown on the final plans. The final power line route, showing that the route is 200 feet or more from any residence or that EMF reduction measures have been incorporated into the design shall be submitted to the County for review.

Timing: The County shall approve the final plans prior to zoning clearance for the first and all subsequent phases.

MONITORING: County staff will ensure that the final plans incorporate the power line route EMF minimization measures. (*Addresses Impact RISK-3)*.

3.13.3.6 Residual Impacts

With the implementation of the mitigations measures identified above, residual impacts from Project-related risks would be less than significant.