3.7. Hazards and Hazardous Materials

This section evaluates the potential hazards to the public and the environment from construction, operation, and decommissioning of the project. It considers both short-term impacts from construction- and decommissioning-phase activities and impacts of long-term operations and maintenance. Hazards discussed in this section include:

- the use and potential for release of hazardous materials;
- the possibility of encountering subsurface hazardous materials during grading and excavation;
- hazards to aviation;
- exposure of people or structures to wildfires; and
- risks to the public from failure of wind turbine generator (WTG) rotors.

Impacts related to hazardous emissions (i.e., toxic air contaminants) are evaluated in Section 3.2, “Air Quality.” Potential effects of hazardous materials on water quality are evaluated in Section 3.8, “Hydrology and Water Quality.” For an evaluation of impacts on areas with high wildfire risk, see Section 5.1.7, “Wildfire.”

3.7.1. Regulatory Setting

Federal

Management of Hazardous Materials

Various federal laws address the proper handling, use, storage, and disposal of hazardous materials, and require measures to prevent or mitigate injury to health or the environment if such materials are accidentally released. The U.S. Environmental Protection Agency (EPA) is the agency primarily responsible for enforcing and implementing federal laws and regulations regarding hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the code, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws, among others:

- The Toxic Substances Control Act of 1976 (Title 15, Section 2601 and following sections of the U.S. Code [15 USC 2601 et seq.]) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials. Section 403 of the Toxic Substances Control Act establishes standards for lead-based paint hazards in paint, dust, and soil. This law mandates use of the Universal Hazardous Waste Manifest (or the Cortese List) to track hazardous substances from “cradle to grave.”
• The Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal (“cradle to grave”).

• The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out the parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.

• The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; 42 USC 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

• The Spill Prevention, Control, and Countermeasure (SPCC) rule (40 CFR Part 112) includes requirements for oil spill prevention, preparedness, and response to prevent discharges of oil to navigable waters and adjoining shorelines. The rule requires specific facilities to prepare, amend, and implement SPCC plans. The SPCC rule is part of the Oil Pollution Prevention regulation, which also includes the Facility Response Plan rule.

Transport of Hazardous Materials

The U.S. Department of Transportation regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act, 49 USC 1801 et seq.) is the basic statute regulating transport of hazardous materials in the United States. The Federal Highway Administration, U.S. Coast Guard, Federal Railroad Administration, and Federal Aviation Administration (FAA) enforce hazardous materials transport regulations.

Worker Safety

The federal Occupational Safety and Health Administration (OSHA) is responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 29 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards for handling hazardous materials and for excavation and trenching.

Air Traffic

The FAA regulates aviation at Travis Air Force Base (AFB) and other regional, public, and private airports; it also regulates objects that affect navigable airspace, such as the
WTGs proposed for the project. The FAA is responsible for promoting and maintaining the safe and efficient use of U.S. airspace for all users. According to 49 CFR Part 77.13:

Any person/organization intending to sponsor any of the following construction or alterations must notify the Administrator of the FAA of:

- Any construction or alteration exceeding 200 feet above the ground level;
- Any construction or alteration:
  - Within 20,000 feet of a public use or military airport which exceeds a 100 to 1 ratio (100:1) surface from any point on the runway;
  - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway;
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above noted standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Persons failing to comply with the provisions of FAR Part 77 are subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended and pursuant to 49 USC 46301(a).

The U.S. Department of Transportation and California Department of Transportation (Caltrans) also require project proponents to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 49 CFR Part 77.17:

- Individuals/Organizations proposing construction or alterations must submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, including pertinent information about the alteration and appropriate attachments showing the type and location of the alteration. Information needed for the FAA review includes the following:
  - Perpendicular distance of the proposed alteration to the nearest runway centerlines;
  - Distance along centerline (actual or extended) from runway end to the perpendicular intercept point;
  - Ground elevation at the site of the proposed alteration;
  - Height of the proposed alteration including antennas or other appurtenances;
  - Accurate geodetic coordinates conforming to North American Datum of 1983 (NAD 83);
  - Sketches, drawings, etc., showing the type of construction or alteration being proposed; and
Pursuant to Section 77.17(a)(1), notification shall be submitted 30 days prior to construction. Given the time required to conduct an aeronautical study, a 60-day notification is recommended to accommodate the review process and issuance of a determination letter.

Notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing any adverse impacts on the safe and efficient use of navigable airspace. This notification serves as the basis for:

- evaluating the effect of the construction or alteration on operating procedures,
- determining the potentially hazardous effect of proposed construction on air navigation,
- identifying mitigation measures to enhance safe air navigation, and
- charting new objects.

A permit must be obtained from Caltrans’s Aeronautics Program for any structure that would constitute a hazard to air navigation, as defined in FAR Part 77. The permit is not required if the FAA aeronautical study determines that the structure would have no impact on air navigation.

According to FAA Order 7400.2F, Procedures for Handling Airspace Matters (FAA 2006), the FAA is authorized to promote the safe and efficient use of navigable airspace, whether concerning existing or proposed structures (also see 49 USC 44178). This includes safety issues regarding radar interference from structures in navigable airspace. To this end, the FAA coordinates with several other federal agencies, including Travis AFB, before issuing a No Hazard Determination.

As also provided in FAA Order 7400.2F, the FAA obstruction evaluation transcends organizational lines and includes military input as provided above. A structure is considered a hazard if it exceeds obstruction standards as outlined in FAR Part 77, and/or if it is found to have a physical or electromagnetic radiation effect on the operation of air navigation facilities (FAA 2006). This also includes airport capacity/efficiency and the effect on ground-based communications and Navigational Aid System equipment, and the signal paths between ground-based and airborne equipment. In addition, under this responsibility clause, military personnel are responsible for evaluating effects on airspace and routes used by the military.

State

Management of Hazardous Materials

In California, both federal and state community right-to-know laws are coordinated through the Governor’s Office of Emergency Services. The federal law, SARA Title III or EPCRA (described above), supports emergency planning efforts at the state and local
levels and enables information sharing with local governments and the public regarding potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials exceeding certain quantities. The provisions of EPCRA apply to the following major categories:

- Emergency planning
- Emergency release notification
- Reporting of hazardous chemical storage
- Inventory of toxic chemical releases

The corresponding state law is found in Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). This law requires qualifying businesses to prepare a hazardous materials business plan. The plan must include procedures for managing hazardous materials and hazardous waste. In addition, the plan must describe emergency response procedures and include a list of emergency spill cleanup supplies and equipment. When an applicant begins to use hazardous materials at levels that reach applicable federal and/or state thresholds, the applicant submits the plan to the administering agency.

The California Department of Toxic Substances Control (DTSC), a division of the California Environmental Protection Agency, has primary regulatory responsibility for hazardous materials in California. DTSC works in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the state, known as the Cortese List. Individual regional water quality control boards (RWQCBs) are the lead agencies responsible for identifying, monitoring, and cleaning up leaking underground storage tanks.

The California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, oversees the drilling, operation, maintenance, and plugging and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices intended to protect the environment, prevent pollution, and ensure public safety.

The California Department of Forestry and Fire Protection maintains maps of fire hazard severity zones for local and state responsibility areas. These areas are mapped based on fuels, terrain, weather, and other relevant factors. These hazard zones are rated based on their potential to expose structures to wildfire. The project site is designated as a Local Responsibility Area Unzoned fire hazard severity zone (CAL FIRE 2007). Surrounding areas are in the moderate fire hazard severity zone, which is the lowest fire hazard rating. For a discussion of fire protection for the area, see Section 5.1.7, “Wildfire.”
Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within and passing through the state. State regulations are contained in Division 26, Title 13 of the California Code of Regulations. The California Highway Patrol and Caltrans have primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies. Together, these agencies determine the container types used and issue licenses to hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by the federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the California Governor’s Office of Emergency Services, which coordinates the responses of other agencies in the project area.

Management of Construction Activities

Through the Porter-Cologne Water Quality Control Act and the National Pollutant Discharge Elimination System (NPDES) program, RWQCBs have the authority to require proper management of hazardous materials during project construction. For a detailed description of the Porter-Cologne Water Quality Control Act, the NPDES program, and the role of the Central Valley RWQCB, see Section 3.8, “Hydrology and Water Quality.”

The State Water Resources Control Board adopted the statewide NPDES General Permit in August 1999. The state requires that projects disturbing more than 1 acre of land during construction file a notice of intent with the RWQCB to be covered under this permit. Construction activities subject to the NPDES General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A storm water pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management practices (BMPs) designed to prevent construction pollutants from contacting stormwater and keep the products of erosion from moving off-site into receiving waters throughout the construction and life of the project. The BMPs must address source control and, if necessary, pollutant control.

Worker Safety

The California Division of Occupational Safety and Health (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace in California. Cal/OSHA standards are typically more stringent than federal OSHA regulations. Under Cal/OSHA rules, an employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (California Code of Regulations Title 8, Sections 337–340). The regulations specify requirements for
employee training, availability of safety equipment, accident-prevention programs, and warnings regarding exposure to hazardous substances.

**Air Traffic**

The State Aeronautics Act, codified at Public Utilities Code Section 21001 et seq., was enacted “to further and protect the public interest in aeronautics and aeronautical progress” (Public Utilities Code Section 21002). The State Aeronautics Act requires the establishment of an airport land use commission in each county. These commissions are established to provide for the orderly development of public use airports in the state and the area surrounding these airports, and to protect public health, safety, and welfare by minimizing the public’s exposure to excessive noise and safety hazards in areas around public use airports (Public Utilities Code Section 21670[a]).

**Local**

As discussed in Section 1.2, policies construction of facilities for the production of electrical energy by a local agency like SMUD is exempt from County zoning and building ordinances (Section 53091 of the Government Code (Subdivisions d and e). The following policies are provided for the purpose of disclosure, and to allow informed decision-making.

**Solano County General Plan**

The Public Health and Safety elements of the Solano County General Plan (Solano County 2008) include policies and programs regarding proper storage, use, and disposal of hazardous materials, setbacks to buffer uses from WTGs, and compatibility of WTG with operations at Travis AFB.

The Resources Element of the Solano County General Plan (Solano County 2008) include policies and programs regarding the siting of energy facilities in ways that avoid impacts to natural resources, including wildlife or agriculture, are compatible with surrounding land uses, and protect scenic views. Setbacks of up to 1,000 feet, or three times a total turbine, are required when near existing residential uses to ensure protection against falling objects due to either blade throw or structural failure of the tower itself.

**Solano County Hazardous Materials Program**

The Solano County Department of Resource Management, Environmental Health Services Division (Environmental Health), manages the Hazardous Materials Program. This program regulates the use, storage, and disposal of hazardous materials in Solano County. Solano County Environmental Health issues permits, inspects facilities, investigates complaints, and consults with both the business community and the public. Environmental Health conducts regulatory oversight of all businesses that handle hazardous materials exceeding 55 gallons, 500 pounds, or 200 cubic feet of gas through a hazardous materials business plan. The hazardous materials business plan program addresses preparedness for emergency response to incidents involving hazardous
materials. These plans include an inventory of hazardous materials that is updated annually.

**Solano County Air Traffic**

The Solano County Airport Land Use Commission (ALUC) exists to protect public health, safety, and welfare by ensuring compatible land uses within the vicinity of Solano County’s airports (Public Utilities Code Section 21670). Several airports operate in the project vicinity. Travis AFB is approximately 10 miles northwest of the project area, and the Rio Vista Municipal Airport is approximately 5 miles to the northeast. The Nut Tree Airport in Vacaville is approximately 19 miles north-northwest of the project area.

The project area is not located in the Nut Tree Airport Compatibility Zones (Solano County 2012) or the Rio Vista Municipal Airport Compatibility Zones or Airport Influence Area (Solano County ALUC 2018). The project area lies within the Travis AFB Airport Influence Area (Solano County ALUC 2015). The Airport Influence Area includes “all lands on which the uses could be negatively affected by present or future aircraft operations at Travis AFB, as well as lands on which the uses could negatively affect Travis AFB” (Solano County ALUC 2015:Section 6.1.2[a][1]).

The presence of WTGs can generate interference with air traffic control radar, rotor turbulence, and vertical obstruction hazards. To adequately prevent hazards, Section 5.6.1 of the Travis AFB Land Use Compatibility Plan (LUCP) states that all new and replacement turbines in Solano County that are greater than 100 feet in height at ground level “shall be referred to the ALUC for a consistency determination” (Solano County ALUC 2015). But as discussed above, SMUD’s WTG facilities are exempt from the County’s zoning and building provisions under subdivisions (d) and (e) of Section 53091 of the Government Code. Therefore, SMUD is not required to comply with the Land Use Compatibility Plan (LUCP) provisions regarding consistency determination. And, even if the LUCP provisions applied, "local agencies" such as SMUD have discretion to overrule the ALUC determinations under Sections 21676 and 21676.5 of the Public Utilities Code. (See Pub. Utilities Code, §§ 21674.7(b), 21675.1(d), 21676, 21676.5, and 21677 [allowing local agencies in Marin County to overrule an ALUC determination by a simple majority].)

3.7.2. **Environmental Setting**

**Definition of Terms**

For purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. The Code of Federal Regulations defines a “hazardous material” as “a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). Section 25501 of the California Health and Safety Code defines a hazardous material as follows:
“Hazardous material” means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Section 25141(b) of the California Health and Safety Code defines “hazardous wastes” as wastes that:

... because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

**Surrounding Land Uses**

Hazardous materials related to historic dryland farming and natural gas exploration and extraction activities may be present below the surface of the project site. Exhibit 3.7-1 shows the project area and the known subsurface locations of potential historic hazardous materials.

**Dryland Farming**

Historically, the project area has been undeveloped land used mostly for dryland farming and livestock grazing. Historical agricultural uses of the property may have included the use of hazardous materials or wastes, including petroleum products such as fuel, solvents, lubricants, and agricultural chemicals related to farming activities. Although residual agricultural chemicals could exist in site soils from historic use of the site for agricultural purposes, the potential presence of these constituents is considered likely to be minimal.

A Phase I Environmental Site Assessment (URS 2012) was completed in 2012 for approximately 720 acres of the project’s total 2,237 acres. The assessment indicated that no recognized environmental conditions were observed on the project site. However, a previous Phase I Environmental Site Assessment completed for most of the project area in 2004 identified evidence of both aboveground storage tanks and underground storage tanks near a former residence and farming equipment staging area (SMUD 2009). However, the project facilities would be located away from any past areas of concentrated use, and the likelihood of encountering any related hazardous materials during construction is considered low.
Exhibit 3.7-1  Location of Potential Hazardous Materials in the Project Area
In addition, a data search of various agency lists was conducted in 2019 for the project site and surrounding areas to identify potential hazardous contamination sites. According to the Envirofacts Web database, no sites within the project boundaries have been reported to EPA, although the Rio Vista Gas Unit is located approximately 1 mile northeast of the Solano 4 East project subarea (EPA 2019). No sites in the project area are shown in DTSC’s EnviroStor database (DTSC 2019) and no underground storage tank sites in the project area are identified on the Cortese List (CalEPA 2019). Therefore, the regulatory database (Cortese) search did not identify any known hazardous wastes sites.

**Natural Gas Exploration and Extraction**

The project area has historical uses that include natural gas exploration and extraction. A records search of the Web site for the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, identifies several wells in the project area (DOGGR 2019). The division’s scoping letter for the project (see Appendix A) notes that there are 12 gas wells within one-quarter mile of the project area, all of which are abandoned. The actual locations of the wells have not been verified. Based on the Division of Oil, Gas, and Geothermal Resources’ review of the available data, impacts on known gas wells are not likely.

Additional potential subsurface hazards include high-pressure natural gas pipelines that may be present in the project area adjacent to the Sacramento River. These pipelines could pose an explosion hazard if damaged during construction activities. Gas pipelines are generally at a depth of 8 feet and descend much deeper as they approach any crossing of the Sacramento River.

**Air Traffic**

Travis AFB serves as the strategic airlift and aerial refueling base on the West Coast. The base also provides support for civilian air traffic control in the base’s vicinity, including airspace over the project area. As shown in the Travis AFB LUCP (Solano County ALUC 2015), the project area is located within Zones D and E of the Travis AFB Airport Influence Area (Exhibit 3.7-2). Zones D and E are the outermost zones, described as “Other Airport Environs” and the “Remainder of the Airport Influence Area.” For these zones, a structure taller than 200 feet above ground level normally requires ALUC review, and proposed WTGs are required to meet line-of-sight criteria in Policy 5.6.1(b) of the Travis AFB LUCP. This policy requires completion of a radar line-of-sight analysis for WTG facilities more than 100 feet in height to demonstrate that placement of the WTG would not adversely affect radar operations. Based on a review of the LUCP and Appendix H of LUCP, which provides examples at a large scale of approximately where wind turbines that are 100 feet, 200 feet, 300 feet, 400 feet, and 500 feet in height above ground level, respectively, would likely be within the line-of-sight of the Travis AFB radar, the project as proposed is unlikely to be determined consistent with this policy of LUCP.
Exhibit 3.7-2  Airport Compatibility Zones
However, as discussed above, the LUCP provisions do not apply to SMUD WTG facilities. Section 53091 of the Government Code (Subdivisions d and e) states that “zoning and building ordinances of a county or city shall not apply to the location or construction of facilities for the generation of electrical energy.” SMUD is a municipal utility district that serves as a local agency with the ability to establish regulations, and the project would be an electrical generation facility that would use wind turbines to generate energy. Consequently, the project is determined to be exempt from County zoning and building ordinances.

Further even if SMUD was required to obtain a determination from ALUC, SMUD, as a local agency, can overrule the ALUC determination by holding a hearing, making findings that the action is consistent with the purposes of the SAA, and obtaining a two-thirds vote of its governing body. (See Pub. Util. Code, § 21674.7(b) ["This subdivision does not limit the authority of local agencies to overrule [the ALUC] actions or recommendations pursuant to Sections 21676, 21676.5, or 21677."]).

In 2016, DoD issued the Report to Congress on the Impact of Wind Energy Developments on Military Installations (DoD 2016). The report discusses the risks posed by wind energy developments near military installations, ranges, or training routes. Although WTGs located in the line of sight of a radar system could adversely affect the ability of radar to locate and track airborne objects, the effect would depend on the number and location of WTGs. The report describes DoD’s continued efforts to develop new strategies to identify mitigation solutions to radar interference issues, including development of new radar technology.

The FAA conducted an aeronautical study of the proposed project under the provisions of 49 USC 44718 and, if applicable, 14 CFR Part 77. Issued on February 1, 2019, the FAA study considered and analyzed the following impacts:

- impacts on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules;
- impacts on all existing and planned public use airports, military airports, and aeronautical facilities; and
- cumulative impacts resulting from the studied WTGs when combined with the impacts of other existing or proposed structures.

The study found that the structures would have no substantial adverse effect on the safe and efficient use of navigable airspace by aircraft or on the operation of air navigation facilities (FAA 2019). The FAA determined that the structures would not be a hazard to air navigation, provided that the WTGs are marked with white paint and lighted using synchronized red lights in accordance with Chapters 4, 12, and 13 of FAA Advisory Circular 70/7460-1L with Change 2, Obstruction Marking and Lighting (FAA 2018).
According to the FAA report, the proposed WTGs would be within the line of sight of the Stockton CA (SCK) ASR-11, Travis (SUU) DASR, Mill Valley (QMV) ARSR-4, and McClellan (MCC) ASR-9 radar facilities. WTGs rarely, if ever create "electromagnetic" interference; however, if WTGs are within the line of sight of a radar sensor, they may be detected by that sensor and may therefore pose physical interference. The air traffic control system command center has sole responsibility for deciding whether the system is acceptable for performing air traffic control duties. The review concluded that the proposed project would not cause an unacceptable adverse impact on air traffic control operations at this time (FAA 2019).

**Sensitive Receptors**

For the purposes of CEQA, the California Air Resources Board considers a sensitive receptor to be a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, daycare centers, convalescent facilities, schools, and parks.

The project area is designated for agricultural use and leased for dryland farming and grazing. There are no sensitive receptors near the project area. A few rural residences are located outside of the project area along rural roads that would be used to bring materials to the project site.

**Electrical and Magnetic Fields**

Homeowners in neighborhoods adjacent to overhead power lines frequently express concerns regarding the potential for health effects from exposure to electric and magnetic fields (EMFs). Available medical and scientific research has not demonstrated that EMFs create a health risk. However, research has not dismissed the possibility of such a risk.

Natural and human-created EMFs occur everywhere. Electric fields are created between two objects that have a different voltage potential. Magnetic fields are created only when there is current flowing through a conductor or device.

Power frequency (60 hertz [cycles per second]) EMFs are invisible fields of force created by electric voltage (electrical fields) and by electric current (magnetic fields). These fields are associated with power lines (either overhead or underground), electric appliances, and the wiring in homes, schools, and work structures. Voltage on wire produces an electrical field in the area surrounding the wire. Magnetic fields are produced by the flow of electricity (current) in a conductor (circuit) and can be calculated and measured. Typically, the main sources of EMFs associated with a WTG are the turbines themselves and the underground collector power lines. A recent study showed that magnetic field levels detected at the base of the WTGs were low and diminished rapidly with distance, becoming indistinguishable from background levels within approximately 6 feet (2 meters) of the base. Magnetic fields measured 3 feet (1 meter) above buried collector lines were...
also within background levels. These background levels are too low to affect human health (Environmental Health 2014).

Asbestos

Asbestos occurs naturally in association with serpentine soil formations in various parts of California. According to a 2011 study by the U.S. Geological Survey, ultramafic rocks or serpentine rocks have been identified in only a small area in southwestern Solano County on the border of Napa County. Based on this map, asbestos would not likely occur on the project site or in the project vicinity (USGS 2011).

3.7.3. Environmental Impacts and Mitigation Measures

Methods and Assumptions

This impact analysis involved reviewing applicable laws, permits, and legal requirements pertaining to hazards and hazardous materials, as discussed above. Within this framework, existing on-site hazardous materials and the potential for other safety or hazardous conditions were reviewed based on information available from SMUD; publicly available information about hazards and hazardous materials; site/location and cleanup status information; aviation requirements; and other available information.

The impact analysis considered the potential for project construction, operation, and decommissioning to cause changes to the nature or extent of hazardous conditions, such as increased potential for exposure to hazardous materials and hazardous conditions; aviation hazards; and risks from failure of a WTG rotor. The potential for hazards and hazardous conditions was reviewed in light of existing hazardous materials management plans and policies and applicable regulatory requirements.

Thresholds of Significance

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant impact related to hazards and hazardous materials if it would:

- 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
• for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise 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; or

• expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Issues Not Discussed Further

The “Impact Analysis” section will not further analyze the proposed project against thresholds of significance for which no significant impacts have been identified. Therefore, the following issues will not be discussed further in the impact analysis.

**Hazardous emissions or handling of Hazardous or Acutely Hazardous Materials, Substances, or Waste Within One-Quarter Mile of an Existing or Proposed School**

The project site is in an area of Solano County that is generally undeveloped and used primarily for agriculture and wind farms. The nearest school is approximately 3 miles from the project site, in the city of Rio Vista. Therefore, the project would not emit or handle hazardous materials within one-quarter mile of an existing or proposed school. This issue will not be discussed further.

**Location on a Site That Is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5, Resulting in the Creation of a Significant Hazard to the Public or the Environment**

No known hazardous materials sites were identified on the property from the regulatory database (Cortese) search. Therefore, the project would not create a significant hazard associated with known hazardous materials sites. This issue will not be discussed further.

**Exposure of Potentially Sensitive Receptors to New Sources of EMF**

The project would include energy-related infrastructure, and operation of the project would involve EMFs. However, the medical and scientific communities generally agree that the available research evidence has not demonstrated that EMFs create a health risk. They also agree that the evidence has not dismissed the possibility of such a risk. Finally, they agree that while this is an important issue that needs resolution, it is uncertain when such a resolution would occur.

The present scientific uncertainty means that public health officials cannot establish any standard or level of exposure that is known to be either safe or harmful. Further, a recent study suggests that there is nothing unique to wind farms with respect to EMF exposure; in fact, magnetic field levels near wind turbines were lower than those produced by many
common household electrical devices and were well below any existing regulatory
guidelines with respect to human health (Environmental Health 2014).

No CEQA standards or health-based standards exist to indicate that EMF emissions are
a potentially significant impact, and this issue is not discussed further. Moreover, because
there are no sensitive receptors in the project area, the project would not result in the
exposure of potentially sensitive receptors to new sources of EMF. This issue will not be
discussed further.

**Exposure of people or structures to the risk of wildfires**

The project would place electrical transmission lines underground to avoid potential for
arcing lines to spark a fire. The WTGs are monitored by a SCADA which is able to monitor
operating conditions and inform the operators of abnormal activity so actions can be taken
to avoid overheating a WTG causing potential mechanical failure.

**Impact Analysis**

**Impact 3.7-1: Exposure of people and the environment to hazardous materials.**

Construction, operation, and eventual decommissioning activities would involve the
storage, transport, and/or handling of hazardous materials. Transport or use of these
materials on-site could expose workers or the environment to hazards. Therefore, this
impact would be **potentially significant**.

**Construction and Decommissioning**

Decommissioning the Solano Wind Project, Phase 1, would involve removing the WTGs
and pad-mounted electrical equipment. The foundations would be abandoned in place by
removing the foundations several feet below ground surface and backfilling the hollow
foundations with fill or slurry. Direct-buried cables would be abandoned in place, and pads
and access roads that are no longer needed would be reclaimed and restored to match
the surrounding land use. The WTGs would be dismantled and hauled off-site to be
recycled or sold for reuse. At the end of the proposed project’s operational life, SMUD
would likely repower the project using then-current industry technology or would remove
the WTGs and restore the project site to conform with the surrounding land use.
Decommissioning the project would involve activities similar to those described above.

Project operations would include routine maintenance, including periodically replacing
lubricating fluids and checking parts for wear. In addition to mechanical maintenance, all
roads, pads, and trenched areas would be inspected and maintained regularly to minimize
erosion.

Construction, maintenance, and decommissioning activities would involve the storage,
transport, and handling of hazardous materials. Construction equipment would use
various hazardous materials (e.g., diesel fuel, oil, solvents). Equipment fuel leaks, fuel
spills, and other events occurring during construction could result in accidental releases
of hazardous materials, primarily fuel and lubricants. An accidental release of a hazardous material could have a significant impact on the environment. Storage, handling, and use would occur in accordance with the project’s hazardous materials business plan and BMPs. However, because the project could create a hazard to the public or the environment through transport, use, disposal, or an accidental spill of hazardous materials, this impact would be potentially significant.

**Mitigation Measure 3.7-1a: Implement Mitigation Measure 3.5-1, “Prepare and implement a SWPPP and associated BMPs.”**

The contractor shall implement Mitigation Measure 3.5-1 listed in Section 3.5, “Geology, Soils, and Mineral Resources.” This measure requires the preparation of a project-specific SWPPP and implementation of the SWPPP by the construction contractors, including all necessary BMPs.

**Mitigation Measure 3.7-1b: Establish and implement an environmental training program.**

Before the start of construction, SMUD or its contractor shall establish an environmental training program to communicate environmental concerns and appropriate work practices to all field personnel. The training program shall cover the use of hazardous materials, waste management, spill prevention, emergency response measures, and proper implementation of BMPs. The program shall emphasize site-specific physical conditions to improve hazard prevention (e.g., identification of potentially hazardous substances) and shall include a review of all site-specific plans, including but not limited to the project’s SWPPP, health and safety plan (as required by OSHA), fugitive dust control plan, and hazardous substances control and emergency response plan.

**Mitigation Measure 3.7-1c: Prepare and implement a hazardous substance control and emergency response plan.**

Before the start of construction, SMUD or its contractor shall prepare a construction-specific hazardous substance control and emergency response plan. The plan shall include preparations for quick and safe cleanup of accidental spills; prescribe procedures for handling hazardous materials to reduce the potential for a spill during construction; and include an emergency response program to ensure quick and safe cleanup of accidental spills. The hazardous substance control and emergency response plan shall also identify BMPs in the event a spill occurs. BMPs may include but are not limited to the following: use of oil-absorbent materials, tarp, and storage drums to contain and control any minor releases; and storage and use of emergency-spill supplies and equipment in locations adjacent to work and staging areas.

The hazardous substance control and emergency response plan shall identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, will be permitted.
Mitigation Measure 3.7-1d: Prepare and implement a spill prevention, control, and countermeasures (SPCC) plan.

If more than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), SMUD’s construction contractor shall prepare and implement a SPCC plan in accordance with state and federal requirements, including 40 CFR 112. The SPCC plan shall identify engineering and containment measures for preventing releases of oil into waterways. The SPCC plan shall be submitted to SMUD for review and approval before the start of operations, or during construction.

If less than 1,320 gallons of petroleum products will be stored on-site (excluding vehicles), this mitigation measure is not required.

Mitigation Measure 3.7-1e: Prepare and implement a hazardous materials business plan.

If the project will use or store hazardous materials equal to or greater than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases, SMUD’s construction contractor shall prepare a hazardous materials business plan that will conform with Solano County Environmental Health requirements. The contractor shall file the plan with SMUD annually. The hazardous materials business plan shall identify site activities; list the contact information for the business owner/operator; provide an inventory of hazardous materials used on-site; provide a facilities map; and identify an emergency response plan/contingency plan.

During the construction phase, if threshold quantities of any hazardous materials are stored on-site for more than 90 consecutive days, then the hazardous materials business plan shall be filed and maintained for as long as any of those thresholds are met or exceeded. During the operations phase, if the threshold for any hazardous materials is met or exceeded for more than 30 consecutive days, then the hazardous materials business plan shall be submitted by the contractor to SMUD and shall be maintained as long as the thresholds are met or exceeded. The regulations require annual submittal of the hazardous materials business plan as long as the project meets the conditions for the continued applicability of the regulations.

If less than 55 gallons of liquids, 500 pounds of solids, and/or 200 cubic feet (at standard temperature and pressure) of compressed gases will be used or stored on-site, this mitigation measure is not required.

Significance after Mitigation

Mitigation Measures 3.7-1a through 3.7-1e require preparation and implementation of various plans to address environmental training; hazardous substance control and emergency response; spill prevention, control, and countermeasures; and hazardous materials. Implementing these mitigation measures would reduce potential impacts on
workers and the environment associated with routine transport or accidental release of hazardous materials to a **less-than-significant** level.

**Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction.**

Construction could result in a short-term hazard to the public and/or the environment if subsurface hazardous materials were to be disturbed during construction activities. Therefore, this impact would be **potentially significant**.

**Impact 3.7-2: Exposure of people and the environment to subsurface hazardous materials disturbed during construction.**

Construction could result in a short-term hazard to the public and/or the environment if subsurface hazardous materials were to be disturbed during construction activities. Therefore, this impact would be **potentially significant**.

During grading, trenching, and other ground-disturbing activities, project construction crews could encounter subsurface hazardous materials related to farming and natural gas extraction. Such an accidental disturbance could produce a release to the environment, causing a hazard to the public. Historic agricultural uses of the property indicate the presence (or likely presence) of hazardous materials or wastes, including fuels, motor oil, lubricants, and agricultural chemicals. However, the likelihood of encountering any related hazardous materials during construction would be considered low. Further, as established in Section 3.7.2, “Environmental Setting,” no impact on known gas wells is likely. However, the locations of the gas wells relative to the proposed WTGs have not been established.

Historical uses of hazardous materials related to farming and natural gas exploration, including petroleum products, are present in the project area. Therefore, the potential exists for an accidental release of hazardous materials to occur during construction. This impact would be **potentially significant**.

**Mitigation Measure 3.7-2a: Implement Mitigation Measures 3.7-1a through 3.7-1e.**

SMUD or its construction contractor shall implement Mitigation Measures 3.7-1a through 3.7-1e, listed above. These measures establish and require implementation of various plans to minimize the risk of accidental release of hazardous materials.

**Mitigation Measure 3.7-2b: Delineate any construction areas where the presence of hazardous materials is known or suspected.**

Before the start of construction, SMUD or its contractor shall delineate construction areas where the presence of hazardous materials is known or suspected. Such areas shall be avoided during construction to the extent feasible. These areas include but are not limited to abandoned gas wells and underground gas pipelines. Underground utilities, such as gas pipelines and high-voltage lines, shall be identified and marked clearly. If necessary, appropriate encroachment permits shall be obtained before work begins.

A Spill Discovery and Response Plan shall be developed before construction begins. The plan shall be implemented in the event that hazardous materials are unexpectedly encountered during construction. The plan shall include instructions for work crews to
stop work immediately, notify the appropriate emergency response agency, and in the case of natural gas pipelines, notify the pipeline operator.

**Mitigation Measure 3.7-2c: Maintain access to gas wells.**

Should a gas well location be verified, SMUD and its construction contractor shall implement the following measures:

- Maintain physical access to any gas well encountered.
- Ensure that the abandonment of gas wells is to current standards.
- If one or more unknown wells is discovered during project development, immediately notify the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources so that the newly discovered well(s) can be incorporated into the records and investigated. Any wells found during implementation of the project, and any pertinent information obtained, shall be communicated to the Solano County Recorder for inclusion in the title information of the subject real property. This is to ensure that present and future property owners are aware of (1) the wells located on the property, and (2) potentially significant issues associated with any improvements near oil or gas wells.
- Avoid performing work on any oil or gas well without written approval from the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources in the form of an appropriate permit. This includes but is not limited to mitigating leaking fluids or gas from abandoned wells, modifications to well casings, and/or any other re-abandonment work.

**Significance after Mitigation**

Mitigation Measures 3.7-2a through 3.7-2c require preparation and implementation of various plans to reduce potential impacts on workers and the environment associated with the release of subsurface hazardous materials. Therefore, implementing these mitigation measures would reduce the impact to a **less-than-significant** level.

**Impact 3.7-3: Safety hazard to air traffic.**

The project site lies within the planning boundary of the Travis AFB LUCP, which contains policies designed to promote land use compatibility with airport operations. Placement of WTGs have the potential to intrude into navigable airspace, thereby increasing the risk of aircraft collision, or causing interference with radar signals used by air traffic control. Therefore, this impact would be **potentially significant**.

The project area is located approximately 10 miles southeast of Travis AFB and 5 miles southwest of the Rio Vista Municipal Airport. The entire project area is located within the Travis AFB Airport Influence Area (Zone D). The proposed WTGs would exceed the turbine height threshold of 200 feet set forth in the Travis AFB LUCP for Zone D. As per
the Travis AFB LUCP, generally such structures trigger a requirement for a consistency evaluation against policies of the LUCP.

As discussed above, the LUCP provisions do not apply to SMUD. Further, even if SMUD was required to obtain a determination from ALUC, SMUD, as a local agency, can overrule the ALUC determination by holding a hearing, making findings that the action is consistent with the purposes of the SAA, and obtaining a two-thirds vote of its governing body. (See Pub. Util. Code, § 21674.7(b) ["This subdivision does not limit the authority of local agencies to overrule [the ALUC] actions or recommendations pursuant to Sections 21676, 21676.5, or 21677."].)

FAA and its regulations concerning air safety and aviation navigation preempt the ALUC’s land use regulations regarding radar system interference. The FAA has conducted an independent evaluation of the Solano 4 Wind Project and determined there would be no significant hazard to air traffic control operations. A No Hazard Determination was issued on February 1, 2019 (see Appendix G for the FAA Notice). The FAA notice determined that the Solano 4 project:

- Is not a hazard for air navigation based on the results of an aeronautical study.
- WTG operations may be detected by radar sensors, and displayed as interference. However, this would not cause an unacceptable adverse impact on ATC operations at this time.
- Proposed WTGs are beyond normal traffic pattern airspace. Therefore, the proposal would not have an adverse effect on Visual Flight Rules\(^1\) (VFR) traffic pattern operations at 591 feet AGL; the structures would extend upwards into altitudes commonly used for en route VFR flight; however, no information was received to indicate they would be located along a regularly used VFR route, or that they would pose a problem for pilots operating en route.
- The proposed structures would have no other effect on any existing or proposed arrival, departure, or en route instrument flight rules operation or procedure. Further, the cumulative impact of the proposed structures, when combined with other proposed and existing structures, would not be considered significant.

During the FAR Part 77 review, the FAA contacted responsible agencies within DoD, which raised no concerns about Travis AFB. FAA also considered communications from the Solano County ALUC, which are described and dismissed by the FAA in the Determination of No Hazard to Air Navigation. Therefore, SMUD can make the requisite

\(^1\) Visual Flight Rules are a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going. Specifically, the weather must be better than basic VFR weather minima, i.e. in visual meteorological conditions (VMC), as specified in the rules of the relevant aviation authority.
findings pursuant to Public Utilities Codes section 21674.7(b) that the project would not result in any adverse impacts on public health, safety, and welfare.

As a condition of the FAA’s Determination of No Hazard to Air Navigation safety lighting would be incorporated into the design of the WTGs using an aircraft detection and lighting system. The risk of unlit WTG structures erected during erection was identified as a potential risk by the FAA, and the aeronautical study provides conditions during construction activity to minimize impacts to air traffic.

**Mitigation Measure 3.7-3: Mark and light wind turbine generators during construction.**

SMUD will e-file FAA Form 7460-2, Part 1, Notice of Actual Construction or Alteration, at least 60 days before the start of construction, so that appropriate action can be taken to amend the affected procedure(s) and/or altitude(s), if necessary.

To ensure proper conspicuity of turbines at night during construction, all WTGs shall be lit with temporary lighting once they reach a height of 200 feet or greater until the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting shall be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights shall be installed and operated at each level as construction progresses.

An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, WTGs shall be lit with self-contained, solar-powered light-emitting diode (LED) steady red light fixtures that meet the photometric requirements of an FAA Type L-810 lighting system. The lights shall be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a Notice to Airmen (NOTAM) (D) to avoid lighting WTGs within the project site until completion of the entire project is prohibited.

This measure includes temporary construction equipment such as cranes and derricks, which may be used during actual construction of the structures. However, this equipment shall not exceed a height of 200 feet. Separate notice shall be provided to the FAA for any equipment taller than 200 feet.

**Significance after Mitigation**

Mitigation Measure 3.7-3 requires that the WTGs be marked and lit according to FAA regulations and made visible to any air traffic for avoidance. Therefore, implementing this mitigation measure would reduce the impact of hazards to aviation during construction to a less-than-significant level.
Impact 3.7-4: Exposure of employees and the public to hazards from accidental rotor failure.

If a blade on a project WTG were to fail, the blade could become a projectile, exposing employees and the public to a hazard. As part of final design and siting, SMUD requires that the contractor prepare a blade throw analysis to inform the final site layout, and ensure sufficient setback is provided to minimize the risk of exposure to such a hazard. This impact would be less than significant.

WTG rotor failure includes throwing or cracking a blade and could result from over-speed, material fatigue, excessive stresses, and vibration. Available documentation shows the probability of blade failure to be in the range of 1 in 1,000 to 1 in 1,000,000 per turbine per year (Simms 2018).

WTG manufacturers have designed methods to prevent over-speed and minimize the occurrence of rotor failure. The SCADA system monitors conditions systemwide and can provide information to alert operators of an impending problem so the rotor blade can be inspected for safety. Further, the project layout is designed to avoid placing WTG near to occupied structures. SMUD policy requires that the construction contractor prepare a blade throw study illustrating that operation of the WTG system as proposed would not pose a safety risk. Impacts are less than significant.

Mitigation Measure 3.7-4: Conduct Safety Evaluation of WTGs

The Contractor shall provide a safety evaluation of the proposed siting plan, and ensure that the design and layout of the Project considers the safety evaluation. The Contractor's safety evaluation shall include an analysis of the following types of failure that could occur:

a. Blade Throw Risk Analysis: Probability of Loss of an entire blade by failure at the hub attachment.

b. Tower Failure. Complete failure of the tower, particularly at the base.

c. Rotor Delamination. Failure of the fiberglass rotor skin, resulting in flying fragments.

d. Blade-Throw Strike. Impact of a failed rotor blade on the tubular tower

Significance after Mitigation

Mitigation Measures 3.7-4 requires voluntary preparation and implementation of a safety plan to ensure the WTGs are sited and designed to meet adequate factors of safety, and lower the probability of a safety hazard to a moderate risk level. Impacts of project construction are less-than-significant.
**Impact 3.7-5: Exposure of people or structures to a significant risk of loss, injury, or death involving wildfires.**

The project site is not located in an area classified as a High Fire Hazard Severity Zone. Although the project would adhere to applicable fire regulations, the use of construction equipment in grass-covered areas could expose people or structures to a significant fire risk. Therefore, this impact would be **potentially significant**.

The project site is not located in a State Responsibility Area designated as a High or Very High Fire Hazard Severity Zone (CAL FIRE 2007; Solano County 2008). However, during the hot summer months, the project area is highly susceptible to grass fires. The grass is dry and flammable, the wind blows regularly, and there are few roads in the area to allow access for fire control. Vehicles, generators, construction equipment, and smoking by construction workers would increase the possible sources of ignition that could increase the risk of wildfire in the area. The existing access roads and existing and proposed internal roads would provide emergency vehicle access and serve as fire breaks. During construction, the transport of WTG components would adversely affect emergency access. An emergency access plan would be required by Mitigation Measure 3.11-2 to maintain emergency access during WTG transport and throughout the construction period (see Section 3.11, “Transportation and Traffic”). Because the project could increase the potential for wildfire, this impact would be **potentially significant**.

**Mitigation Measure 3.7-5a: Prepare and implement a grass fire control plan.**

SMUD or its construction contractor will develop a grass fire control plan. The plan shall be implemented for use during construction and operation of the project to reduce potential impacts on public services relative to fire protection services in the project area. The plan shall include notification procedures and emergency fire precautions, as discussed in Section 4.8, “Hazards and Hazardous Materials.” This shall include the training of construction workers in the use of firefighting equipment available on-site (e.g., fire extinguishers) and communicating with the Montezuma Fire Protection District. Additionally, the nearby Montezuma Fire Protection District stations are equipped for grass fires, and the proposed access roads for WTG maintenance shall be used to improve access by fire trucks during emergency situations and serve as a fire break. The operations and maintenance building shall be designed to SMUD’s safety standards and shall include a fire alarm. In addition, construction and maintenance crews shall be trained in fire prevention, carry fire extinguishers in all vehicles, and have access to one or more water trucks.

**Mitigation Measure 3.7-5b: Implement Mitigation Measure 3.11-1b, “Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions.”**

SMUD will implement Mitigation Measure 3.11-2 listed in Section 3.11, “Transportation and Traffic.” This measure requires the development and implementation of a plan to
maintain emergency access during WTG transport and throughout the construction period.

**Significance after Mitigation**

Mitigation Measures 3.7-5a and 3.7-5b require preparation and implementation of a grass fire control plan and emergency access plan. Implementing these mitigation measures and adhering to all applicable regulations would reduce potential impacts of project construction related to wildland fires to a *less-than-significant* level.