

## **SECTION 4.5**

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# **HAZARDS AND HAZARDOUS MATERIALS**

## 4.5 HAZARDS AND HAZARDOUS MATERIALS

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This section describes federal, state and local regulations applicable to hazards and hazardous materials. It also describes the environmental setting with regard to potential hazards associated with implementation of the proposed Battery Energy Storage System. It focuses on hazardous materials, fire safety and mechanisms to prevent accidental release/explosion. Measures are identified to reduce or avoid adverse impacts anticipated from construction, operation, and decommissioning of the proposed Project. A discussion of cumulative impacts related to hazards and hazardous materials is also included in this section.

This analysis does not address the potential exposure of workers to hazardous materials used at the proposed Project site. Employers must inform employees of hazards associated with their work and provide those employees with special protective equipment and training to reduce the potential for health impacts from the handling of hazardous materials.

Seismic hazards, flood hazards and exposure to noise are discussed in Section 4.4, Geology and Soils and Section 4.6, Noise.

### 4.5.1 REGULATORY FRAMEWORK

#### A. FEDERAL

##### **Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.)**

The Resource Conservation and Recovery Act (RCRA) grants authority to the Environmental Protection Agency (EPA) to control hazardous waste from start to finish. This covers the production, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also sets forth a framework for the management of non-hazardous solid waste. The 1986 amendments to the RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. Small quantities of hazardous materials will be used and stored on-site during operations and maintenance of the Project.

##### **Federal Water Pollution Control Act (Clean Water Act)**

The Federal Water Pollution Control Act, better known as the Clean Water Act (CWA), is a comprehensive statute focused on restoring and maintaining the chemical, physical and biological integrity of the nation's waters. Originally enacted in 1948, the Act was amended numerous times until it was reorganized and expanded in 1972. It continues to be amended almost on an annual basis.

Primary authority for the implementation and enforcement of the CWA rests with the EPA. The CWA authorizes water quality programs, requires federal effluent limitations and state water quality standards, requires permits for the discharge of pollutants into navigable waters, provides enforcement mechanisms, and authorizes funding for wastewater treatment works construction grants and state revolving loan programs, as well as funding to states and tribes for their water quality programs. Provisions have also been added to address water quality problems in specific regions and specific waterways.

During construction of the proposed Project, a National Pollution Discharge Elimination Permit (NPDES) permit will not be required for Phase 1 because less than one acre would be disturbed. However, a NPDES Small Construction Waiver will need to be submitted for Phase 2 of the Project because more than 1 acre, but less than 5 acres would be disturbed. The Battery Energy Storage System does not propose any features that would degrade water quality once operational.

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### **Occupational Safety and Health Act (OSHA)**

Congress passed the Occupational Safety and Health Act (OSHA) to assure safe and healthful working conditions for working men and women. OSHA authorized enforcement of the standards developed under the Act and by assisted States in its efforts to assure safe and healthful working conditions. OSHA also provides for research, information, education, and training in the field of occupational safety and health. The project would be subject to OSHA requirements during construction, operations and maintenance and decommissioning.

### **Title 47, CFR, section 15.2524, Federal Communications Commission (FCC)**

Title 47, CFR, Section 15.2524, Federal Communications Commission (FCC) prohibits operation of devices that can interfere with radio-frequency communication. All of the batteries used at the facility will be UL and should not have any effect on radio frequency. All of the equipment associated with the charge/discharge of energy from the batteries is specified at 60Hz which is on the lower range of radio frequencies (Southern Power Company 2016).

B. STATE

### **Title 22 of the California Code of Regulations**

#### ***Hazardous Materials Defined***

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. According to Title 22, Section 66260.10, of the California Code of Regulations (CCR), a hazardous material is defined as:

*...A substance or combination of substances which because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or, (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.*

Chemical and physical properties that cause a substance to be considered hazardous include the properties of toxicity, ignitability, corrosivity, and reactivity (Title 22, Sections 66261.20 through 66261.24). Factors that influence the health effects of exposure to hazardous materials include dosage, frequency, the exposure pathway, and individual susceptibility. The proposed Battery Energy Storage System would require use of small amounts of hazardous materials (such as diesel fuel, oil and grease for heavy equipment) during construction, maintenance and decommissioning. During operation, the Project would place lithium ion batteries next to the Campo Verde Substation. The batteries would be housed in a container and structure with a fire safety system.

### **California Environmental Protection Agency**

The California Environmental Protection Agency (Cal EPA) and the State Water Resources Control Board (SWRCB) establish rules governing the use of hazardous materials and the management of hazardous waste. Applicable state and local laws include the following:

- Public Safety/Fire Regulations/Building Codes
- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act
- Porter-Cologne Water Quality Control Act

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The use of lithium ion batteries proposed as part of the Project would be subject to state and local laws.

### ***Department of Toxic Substances Control***

The Department of Toxic Substances Control (DTSC) has primary regulatory responsibility for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL). Enforcement is delegated to local jurisdictions that enter into agreements with DTSC.

California's Secretary of Environmental Protection established a unified hazardous waste and hazardous materials management regulatory program as required by Health and Safety Code Chapter 6.11. The unified program consolidates, coordinates, and makes consistent portions of the following six existing programs:

- Hazardous Waste Generations and Hazardous Waste On-site Treatment
- Underground Storage Tanks
- Hazardous Material Release Response Plans and Inventories
- California Accidental Release Prevention Program
- Aboveground Storage Tanks (spill control and countermeasure plan only)
- Uniform Fire Code Hazardous Material Management Plans and Inventories

The statute requires all counties to apply to the Cal EPA Secretary for the certification of a local unified program agency. Qualified cities are also permitted to apply for certification. The local Certified Unified Program Agency (CUPA) is required to consolidate, coordinate, and make consistent the administrative requirements, permits, fee structures, and inspection and enforcement activities for these six program elements within the county. Most CUPAs have been established as a function of a local environmental health or fire department.

The Office of the State Fire Marshal participates in all levels of the CUPA program including regulatory oversight, CUPA certifications, evaluations of the approved CUPAs, training, and education. The DTSC serves as the CUPA in Imperial County.

Small quantities of hazardous materials will be transported to and from the project site and used and stored on-site for miscellaneous, general operations and maintenance activities. In addition, lithium ion batteries (housed in a container and structure equipped with a fire safety system) will also be placed on the Project site.

### ***Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders"***

Title 8 of the California Code of Regulations specifies requirements and minimum standards for safety when installing, operating, working around, and maintaining electrical installations and equipment. The proposed Project would be subject to Title 8.

### ***National Electrical Safety Code (NESC)***

The National Electrical Safety Code specifies grounding procedures to limit nuisance shocks and specifies minimum conductor ground clearances. The proposed Project would be subject to this code and would be designed with a grounding system providing an adequate path-to-ground to permit the dissipation of current created by lightning and ground faults.

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### **14 California Code of Regulations (CCR), Sections 1250 – 1258, “Fire Prevention Standards for Electric Utilities”**

14 CCR provides specific exemptions from electric pole and tower firebreak. 14 CCR also provides conductor clearance standards and specifies when and where standards apply. These standards address hazards that could be caused by sparks from conductors of overhead lines, or that could result from direct contact between the line and combustible objects. The proposed Project would be subject to these standards.

### **2013 California Fire Code**

The 2013 California Fire Code (CFC) is an enforceable set of regulations for the safeguarding of life and property from fire and explosion hazards arising from the storage, handling and use of hazardous substances, materials and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises.

The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations (CFC 2013).

The Imperial County Fire Department (ICFD) adheres to and enforces the regulations contained in the 2013 CFC.

### C. LOCAL

#### **County of Imperial General Plan**

Both natural and man-made hazards are addressed in the County of Imperial General Plan. The Seismic and Public Safety Element also contains a set of goals and objectives for land use planning and safety, emergency preparedness, and the control of hazardous materials. The goals and objectives, together with the implementation programs and policies provide direction for development.

**Table 4.5-1** analyzes the consistency of the proposed Battery Energy Storage System with the applicable goal and objectives relating to public safety in the County of Imperial General Plan. While this SEIR analyzes the Project’s consistency with the General Plan pursuant to CEQA Guidelines Section 151250, the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

**TABLE 4.5-1  
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

General Plan Policies	Consistent with General Plan?	Analysis
<b>Public Safety Policies</b>		
<b>Control Hazardous Materials</b>		
<b>Goal 3:</b> Protect the public from exposure to hazardous materials and wastes.	Yes	The County has adopted an Emergency Operations Plan and a Fire Prevention and Explosives Ordinance to protect the public from exposure to hazardous materials wastes. The proposed Project is located in

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**TABLE 4.5-1  
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

General Plan Policies	Consistent with General Plan?	Analysis
		a rural and unpopulated portion of the County. The Battery Energy Storage System does not involve exposure of the public to hazardous materials and wastes. Prior to using or storing hazardous materials on the Project site, the Applicant will update the existing Hazardous Material Business Plan (HMBP) prepared for the Campo Verde Solar Project to include the Battery Energy Storage System. Thus, the proposed Project is consistent with this goal.
<b>Objective 3.1</b> Discourage the transporting of hazardous materials/waste near or through residential areas and critical facilities.	Yes	The Battery Energy Storage System site is not near any residential uses or critical facilities such as a hospital or fire station. Large quantities of hazardous materials are not required as part of construction, operation, or decommissioning of the proposed Project. While lithium ion batteries can be flammable, they would be enclosed, equipped with a fire safety system and would be required to meet all applicable California Fire Codes. Therefore, the proposed Project is consistent with this objective.
<b>Objective 3.2</b> Minimize the possibility of hazardous materials/waste spills.	Yes	As noted under the analysis for Goal 3, prior to using or storing hazardous materials on the Project site, the Applicant will update the existing HMBP prepared for the Campo Verde Solar Project to include the proposed Battery Energy Storage System. In addition, special precautions would be implemented to avoid accidental spills while refueling equipment during construction. Therefore, the proposed Project is consistent with this objective.
<b>Objective 3.3</b> Discourage incompatible development adjacent to sites and facilities for the production, storage, disposal, and transport of hazardous	Yes	The Project site is within the boundaries of the Campo Verde Solar Project. The proposed Battery Energy Storage System is compatible with surrounding uses and the Project site is not adjacent to any

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TABLE 4.5-1  
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Policies	Consistent with General Plan?	Analysis
materials/waste as identified in the County General Plan and other regulations.		hazardous materials/waste facilities. Therefore, the proposed Project is consistent with this objective.

### **Imperial County Office of Emergency Services – Emergency Operations Plan**

The Imperial County Fire Department (ICFD) is the local Office of Emergency Services (OES) in Imperial County. The County Fire Chief is the OES Coordinator. An Assistant OES Coordinator maintains the OES program for the County of Imperial. ICFD acts as the lead agency for the Imperial County Operational Area (OA) and provides leadership in all phases of developing the emergency management organization, including public education, training, EOC operations, interagency coordination, and plan development (Imperial County OES 2007).

The Imperial County Emergency Operations Plan (EOP) provides a comprehensive, single source of guidance and procedures for the County to prepare for and respond to significant or catastrophic natural, environmental, or conflict-related risks that produce situations requiring coordinated response. It further provides guidance regarding management concepts relating to response and abatement of various emergency situations, identifies organizational structures and relationships, and describes responsibilities and functions necessary to protect life and property. The EOP is consistent with the requirements of the Standardized Emergency Management System (SEMS) as defined in Government Code Section 8607(a) and the U.S. Department of Homeland Security National Incident Management System (NIMS) for managing response to multi-agency and multi-jurisdictional emergencies. SEMS/NIMS incorporates the use of the Incident Command System (ICS), mutual aid, the operational area concept, and multi/interagency coordination (Imperial County OES, 2007). The Battery Energy Storage System site is in Zone 1-B of Fire/Emergency Management/Staging and Shelter Zones in the EOP (Imperial County OES 2007, p. 73).

### **County of Imperial Fire Prevention and Explosives Ordinance**

The County of Imperial Fire Prevention and Explosives Ordinance, Section 53101-53300, contains provisions for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion. Such measures in this Ordinance include the following:

- Storage of flammable materials
- Storage of radioactive materials
- Permit required for sale and use of fireworks
- Abatement of weeds and other vegetation

Weed and vegetation control is currently enforced as part of operations and maintenance of Campo Verde Solar Project. The Integrated Pest Management Plan for Private Lands Campo Verde Solar Project (Heritage 2012c) will be revised to include the proposed Battery Energy Storage System site. Provisions pertaining to the storage of flammable materials (i.e. lithium ion batteries) would apply to the proposed Battery Energy Storage System. The existing Campo Verde Solar Project Hazardous Materials Business Plan will be updated to incorporate the

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hazardous materials associated with the lithium ion battery storage systems including the location, quantity, composition and storage conditions.

### 4.5.2 ENVIRONMENTAL SETTING

The Battery Energy Storage System is proposed within the existing boundaries Campo Verde Solar Project to the west of the Campo Verde Substation. The Substation is located west of Liebert Road, south of Wixom Road and north of Mandrapa Road (see Figure 2.0-2 in Chapter 2.0). The proposed Battery Energy Storage System site is immediately to the west of the Substation (see Figure 2.0-3 in Chapter 2.0). There is one access to the Substation off of Liebert Road which would be extended approximately 1,000 feet from the terminus of the existing paved access road.

#### **Phase I Environmental Site Assessment**

A Phase I Environmental Site Assessment was prepared for the Campo Verde Solar Project site (URS 2012). The Phase I ESA encompassed the Battery Energy Storage System site. The Phase I ESA was prepared to determine if any recognized or potential environmental conditions are present within the boundaries of the Campo Verde Solar Project. The American Society for Testing and Materials (ASTM) defines “recognized environmental conditions” as “any hazardous substance or petroleum product under conditions that indicate an existing, past, or material threat of release into the structures, ground, groundwater, or surface water at the subject site.”

The Phase I ESA included results of a site reconnaissance to identify conditions of the Campo Verde Solar Project site and adjoining properties prior to development of the project. The Phase I ESA included, a review of various readily available federal, state, and local government agency records, and review of available historical site and site vicinity information. A review of the Phase I ESA revealed that Assessor’s Parcel Number (APN) 051-350-014 (now 051-350-018) had a shade/shelter structure in the central portion of the property as well as a bee box shade structure on the southern side of the parcel (URS 2012, p. 2-2 and p. A-9). These structures did not contain any hazardous materials and were removed when the Campo Verde Solar Project was constructed.

#### **Emergency Plans**

The County of Imperial has adopted the “Imperial County Operational Area - Emergency Operations Plan,” which addresses the County’s planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. The plan identifies certain open space areas and public buildings to serve as emergency shelters when residents must be relocated. No portion of the Campo Verde Solar Project, including the Battery Energy Storage System site, is designated as an emergency shelter area on the Fire/Emergency Management/Staging and Shelter Zone Map (Imperial County OES 2007).

#### **Fire Hazard**

The potential for a major fire in the unincorporated areas of the County is generally low. According to the Imperial County Natural Hazard Disclosure (Fire) Map prepared by the California Department of Forestry and Fire Protection (CDF 2000), the Campo Verde Solar Project, including the Battery Energy Storage System site, is not located in an area characterized as either: (1) a wildland area that may contain substantial forest fire risk and hazard; or (2) very high fire hazard severity zone. The closest wildland area prone to forest fire is located is approximately 20 miles west of the Project site.



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### Valley Fever

Valley Fever is an illness caused by a fungus (*Coccidioides immitis* and *C. posadasii*) that grows in soils under certain conditions. Favorable conditions for the Valley Fever fungus include low rainfall, high summer temperatures, and moderate winter temperatures. Soils within the Imperial Valley, including the Project site, fit the profile to harbor Valley Fever spores. When soils are disturbed by the wind or other activities such as construction and farming, Valley Fever fungal spores become airborne. The spores present a potential health hazard when inhaled. Individuals in occupations such as construction, agriculture, and archaeology have a higher risk of exposure due to working in areas of disturbed soils which may have the Valley Fever fungus. Infection risk is highest in California during a six-month period from June to November. Animals are also susceptible to the disease. In extreme cases, the disease can be fatal, though the majority of Valley Fever cases are very mild with over 60 percent or more of infected people having no symptoms or flu-like symptoms (BLM 2010a). Imperial County has a relatively low Valley Fever incidence rate of 0.1 to 5 cases for every 100,000 people (CDPH 2009).

### 4.5.3 IMPACTS AND MITIGATION MEASURES

#### A. STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following State CEQA Guidelines, as listed in Appendix G. The Project would result in a significant impact to hazards and hazardous materials if it would result in any of the following:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) 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?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d) 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, would it create a significant hazard to the public or the environment?
- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

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### B. ISSUES SCOPED OUT

Several criteria were eliminated from further evaluation as part of the CEQA Appendix G Environmental Checklist Form. Criterion “c” because the Project site is not located within one-quarter mile of an existing school. Furthermore, the Project would not create any hazardous emissions. Therefore, this issue is not discussed further.

Criterion “d” was eliminated because the Battery Energy Storage System site is not listed as a hazardous materials site pursuant to Government Code, Section 65962.5. Therefore, this issue is not discussed further.

Criteria “e” and “f” were eliminated because the Battery Energy Storage System site is not located within two miles of a public airport or a private airstrip. Therefore, this issue is not discussed further.

Criterion “d” was eliminated because the proposed Project would not interfere with an adopted emergency response plan or evacuation plan. As identified in the Seismic and Public Safety Element of the County of Imperial General Plan, the "Imperial County Emergency Plan" addressed Imperial County's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. The proposed circulation plan for the Battery Energy Storage System site will be required to provide emergency access points and safe vehicular travel. In addition, local and state building codes would be followed to minimize flood, seismic, and fire hazard. Thus, the proposed Project would not impair the implementation or physically interfere with any adopted emergency response plans or emergency evacuation plans. No impact is identified for this issue and it is not discussed in the SEIR.

Criterion “h” was eliminated because the Battery Energy Storage System site is not characterized as an area of urban/wildland interface. According to the Imperial County Natural Hazard Disclosure (Fire) Map prepared by the California Department of Forestry and Fire Protection (2000) the Project site does not fall into an area characterized as either: (1) a wildland area that may contain substantial forest fire risk and hazard; or (2) very high fire hazard severity zone. Thus, the Project site would not expose people or structures to significant risk of loss injury or death involving wildland fire. No impact is identified for this issue area and it is not discussed further.

### C. ISSUES OF CONCERN WITH NO APPLICABLE CRITERIA

Several hazards of potential concern to the public with no corresponding criteria are briefly discussed below. These hazards are acknowledged and discussed to the extent that they would result from the proposed Project.

#### **Hazardous Shocks**

The area located in the vicinity of the battery container and building and components will be designed and constructed for lightning protection in accordance with NFPA Standard 780, UL 96 and 96A, and local applicable codes and standards (Southern Power Company 2016).

Grounding will be designed as required by IEEE, NEC, NESC, and local code requirements. The ground grid or ground loop will be provided under/around major electrical equipment (step-up transformers, medium voltage switchgear, inverters, etc.) The grounding system will consist of bare copper conductor and copper-clad steel or stainless steel ground rods. Ground rods will be copper clad, cold drawn carbon steel, manufactured in accordance with UL 467. Individual ground rods will be at least 5/8-inch diameter and 10 feet long. Ground lugs will be single-hole or two-hole, heavy-duty, copper bars conforming to the requirements of IEEE 837 and UL 467.

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Ground bus bar shall be soft drawn, uncoated copper conforming to the requirements of ASTM B-187. The Module direct current (DC) system grounding electrode(s) will be common with, or bonded to, the alternating current (AC) grounding electrode as indicated in NEC Article 690.47. The design shall also conform to IEEE Standard 665 (Southern Power Company 2016).

### **Fire Hazard (Non-Wildland/Operational)**

Fire prevention and suppression methods are proposed as part of the Project's design. To protect the battery system, a fire suppression system (FSS) will be installed in the container (Phase 1) and building (Phase 2), and employs FM200 gas agent along with smoke detectors, control panel, alarm, piping and nozzles. These features are described in greater detail under Impact 4.5.2 below.

### **Valley Fever**

Construction of the proposed project would occur in an area favorable to the growth of Valley Fever, a fungus (*Coccidioides immitis*) that grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. Project construction would disturb the soil and cause the fungal spores to become airborne, potentially putting construction personnel and wildlife at risk of contracting Valley Fever. However, Imperial County is not considered to have a high incidence of Valley Fever (BLM 2011). While the potential exposure of workers to Valley Fever spores could occur during construction, implementation of a Dust Control Plan and the provisions of Regulation VIII identified to reduce PM<sub>10</sub> in Section 4.1, Air Quality/Greenhouse Gas Emissions would be effective in reducing airborne dust. Implementation of these measures, as well as a Dust Control Plan as required by the Imperial County Air Pollution Control District, would minimize the spread of fungal spores thereby reducing potential for contracting Valley Fever during construction. No impacts associated with exposure to Valley Fever are anticipated during operations and maintenance given that earthmoving is proposed and vehicles would be driven on paved and gravel covered roadways thereby minimizing dust levels.

## D. METHODOLOGY

The analysis of hazardous materials is twofold: those potentially existing on the site and those that would be used as part of Project construction, operations and maintenance, and decommissioning.

Some hazardous materials would be used on a short-term basis during construction and decommissioning. Others would be stored on-site for use during operations and maintenance similar to those currently in use as part of operation of the Substation. Therefore, this analysis was conducted by examining the types and amount of chemicals to be used, the manner in which the Applicant would use the chemicals, the manner by which they would be transported to the facility, and the way in which the Applicant plans to store the materials on site.

## E. PROJECT IMPACTS AND MITIGATION MEASURES

### **Hazardous Materials Transport, Use, Disposal and Accidental Release**

**Impact 4.5.1** The proposed Project would involve the transport, use, and disposal of hazardous materials in association with construction, operation and decommissioning. However, all materials would be transported, used and disposed of in accordance with all applicable local, state and federal requirements. Therefore, impacts associated with accidental release during hazardous materials transport, use and disposal are considered **less than significant**.

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### Transport

Some hazardous materials would be required during construction, operations and maintenance, and decommissioning of the proposed Battery Energy Storage System. These include diesel fuel, oil and grease for heavy equipment as well as paints and solvents. Large quantities of these materials are not anticipated to be necessary but would require transport to the Project site. Hazardous materials such as diesel fuel, oil and grease for heavy equipment, would be transported to the site during construction and decommissioning. Materials containing electrolyte and graphite would also be transported during construction, operation (if replacement of batteries is needed) and decommissioning (removal of the batteries). All of these various materials would be transported and handled in compliance with Department of Toxic Substances Control (DTSC) regulations. Therefore, likelihood of an accidental release during transport or residual contamination following accidental release is not anticipated. Thus, less than significant impacts are anticipated in association with transport, use, disposal and accidental release of hazardous materials during construction, operation and decommissioning of the proposed Project.

### Use and Storage

A variety of hazardous materials would be used during construction and decommissioning of the proposed Project including diesel, gasoline, motor oil and hydraulic fluids and lube oils for vehicles and equipment, and mineral oil for transformers. However, no acutely toxic hazardous materials would be used and none of the materials are anticipated to pose a significant potential for off-site impacts such as contamination through a large release of chemicals. Spill containment and clean-up kits will be kept on site during construction, operation and decommissioning of the Battery Energy Storage System. In addition, the Project will also be required to comply with State laws and County Ordinance restrictions, which regulate and control hazardous materials handled on-site. Therefore, potential for accident conditions involving the release of hazardous materials used or stored during construction and decommissioning is considered a **less than significant impact**.

Lithium ion batteries contain cobalt oxide, manganese dioxide, nickel oxide, carbon, electrolyte, and polyvinylidene fluoride. Only the electrolyte should be considered hazardous (inflammable, and could react hazardously if mixed with water). The electrolyte solvent is a mix of three organic solvents with the following characteristics:

	Solvent 1	Solvent 2	Solvent 3
	<b>Temperature (degrees Celsius)</b>		
<b>Boiling Point<sup>1</sup></b>	248	107	90.5
<b>Flash Point<sup>2</sup></b>	145.5	23.5	16
<b>Class<sup>3</sup></b>	III-B	I-C	I-B

Source: Southern Power Company 2016.

- 1 The **boiling point** of a substance is the temperature at which the vapor pressure of the liquid equals the pressure surrounding the liquid and the liquid changes into a vapor.
- 2 The **flash point** of a flammable liquid is the lowest temperature at which there will be enough flammable vapor to ignite when an ignition source is applied.
- 3 Rules for Flammability Class:
  - Class I-A flammable liquids have a flash point below 73 °F (22.8 °C) (the upper end of the common range of room temperature) and a boiling point below 100 °F
  - Class I-B flammable liquids have a flash point below 73 °F (22.8 °C) and a boiling point greater than or equal to 100 °F (37.8 °C)
  - Class I-C flammable liquids have a flash point greater than or equal to 73 °F (22.8 °C) and below 100 °F (37.8 °C)
  - Class II combustible liquids have a flash point greater than or equal to 100 °F (37.8 °C) and below 140 °F (60 °C)
  - Class III-A combustible liquids have a flash point greater than or equal to 140 °F (60 °C) and below 200 °F (93.3 °C)
  - Class III-B combustible liquids have a flash point greater than or equal to 200 °F (93.3 °C)

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As shown, each of the solvents have differing boiling points and flash points. Solvent 1 is a combustible liquid whereas Solvent 2 and 3 are flammable liquids. Solvent 1 requires a very high temperature flash point in order to combust. Solvent 2 and 3 have lower flash and boiling points before they will ignite. As previously noted, electrolyte only becomes flammable in the presence of water.

In addition to the electrolyte solvent in the presence of water, the carbon, which is graphite, is also flammable. Fire risk factors would be mitigated through project design features including monitoring, diagnostics and by a fire suppression system. The batteries for both Phase 1 and Phase 2 are in enclosed facilities. The container for Phase 1 and the building for Phase 2 serve to provide fire protection as well as to mitigate the risk of potential spills. The Project will also be required to comply with State laws and County Ordinance restrictions which regulate and control hazardous materials handled on-site. Therefore, potential for accident conditions as part of use and storage during construction, operation and decommissioning of the Battery Energy Storage System is considered a **less than significant impact**.

### ***Disposal***

During construction, typical construction wastes such as wood, concrete, and miscellaneous packaging materials would be generated. Construction wastes will be disposed of in accordance with local, State and federal regulations, and recycling will be used to the greatest extent possible. Left-over or spent materials such as used hydraulic fluid, oils, and grease would be generated during Project construction. Any spent or surplus hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste. The same would occur with regard to any used or spent hazardous materials requiring disposal during operation.

In the event that cell damage is suspected and requires replacement or removal during construction, operation and/or decommissioning, Samsung SDI's Customer Service Team and Southern Power Company's Return Merchandise Authorization service provider, CKS, will assist in removal of affected equipment. Recycling of the battery cells is also performed by CKS (Southern Power Company 2016). The batteries will be transported/shipped in compliance with all applicable federal, state and local regulations addressing hazardous materials transport. Once the batteries arrive at their destination, the old cells are opened, and the major components (electrolyte, electrode, current collector foils, case) are separated and repurposed. With adherence to these procedures, the potential for accident conditions involving the release of hazardous materials disposed of during construction, operation and decommissioning is considered a **less than significant impact**.

### **Mitigation Measures**

None required.

### **Significance After Mitigation**

Not applicable.

### **Hazard Through Upset/Release of Hazardous Materials**

**Impact 4.5.2** The proposed Project site was historically farmed but is now part of the Campo Verde Solar Project. The Phase I ESA prepared for the Campo Verde Solar Project did not identify the use of pesticides as a Recognized Environmental Condition. The Project as proposed includes safety features to reduce potential for leaks and fires. Therefore, impacts through upset/release of hazardous materials are considered **less than significant**.

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### ***Herbicides/Pesticides***

The Project site has historically been farmed but is now within the boundaries of the Campo Verde Solar Project. The Phase I ESA did not identify the use of pesticides as a Recognized Environmental Condition (REC) as no mixing or storage of large quantities of pesticides was identified during the reconnaissance of the Campo Verde Solar Project site or during the review of historical data and/or regulatory databases (Ray 2011). Based on the historical agricultural use of the property, the Phase I ESA acknowledged that there is the potential for residual pesticide concentrations in the surface and subsurface soils (URS 2012, p. 2-5). However, the Phase I ESA did not recognize this as a REC. While chemical retention in surface and subsurface soils could be of concern, the majority of agricultural chemicals degrade rapidly in the presence of ultraviolet light from the sun. Further, most newer-formulated chemicals have lower retention time especially at the lower application concentrations directed by regulatory agencies. No soil remediation was recommended.

The application of herbicides and pesticides on site would have been controlled by the applicators as directed by the Federal Insecticide, Fungicide, and Rodenticide Act (“FIFRA”) in accordance with manufacturer prescribed and labeled instructions. Therefore, the potential presence of low concentrations of agricultural chemicals on the Project site is not anticipated to be at hazardous levels. Also, the proposed Battery Energy Storage System does not include a residential or commercial component that would result in long-term exposure of people to potential pesticides/herbicides. Therefore, no direct impact (exposure during construction and decommissioning) or indirect impact (exposure following construction during operations and maintenance) would occur relative to pesticide residue in association with construction of the proposed Project.

Currently, herbicides are used at the neighboring Substation to control weeds as prescribed in the Integrated Pest Management Plan for Private Lands Campo Verde Solar Project (Heritage 2012c). The potential for air dispersion of pesticide or herbicide residues in dust during grading activities for the Battery Energy Storage System would be minimized by the fugitive dust control plan implemented by the Applicant in accordance with Imperial County Air Pollution Control District (ICAPCD) requirements. Compliance with ICAPCD Regulation VIII, Fugitive Dust Rules, would prevent, reduce, or mitigate the PM<sub>10</sub> emissions (ICAPCD 2006). Specifically, compliance with Rule 801-Construction and Earthmoving Activities, Rule 805-Paved and Unpaved Road, and Rule 806-Conservation Management Practices would reduce PM<sub>10</sub> emissions, minimize dust and also reduce any associated air dispersal of pesticide residues. Therefore, impacts associated with hazard through upset/release of hazardous materials resulting from exposure to pesticide residue and herbicides during construction, operation and decommissioning are considered **less than significant**.

### ***Risk of Fire***

Lithium ion batteries are technology proposed to store energy on the Campo Verde Solar Project site. Specifically, a Samsung SDI Energy Storage System (ESS) will be used. Phase 1 will include 440 modules and 13,200 batteries housed in a metal modular battery system container on a concrete foundation. The container will be cooled with two HVAC units. Phase 2 batteries will include 8,800 modules and 264,000 batteries housed in a metal building on a concrete foundation. This container will be cooled by eight HVAC units (Southern Power Company 2016).

The Samsung SDI ESS includes multiple safety designs to minimize risk of fire. The battery modules have been subjected to the “Internal Fire Exposure Test” by Underwriter’s Laboratory to

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demonstrate that they are not susceptible to thermal runaway (i.e. failure of a single cell within the system will not cascade into a fire and explosion) (Samsung n.d.).

An added level of protection is included in as part of Project design by housing the battery units in enclosed structures to provide containment should a fire break out. In addition, housing the battery units in an enclosure also mitigates the risk of potential spills.

### **Design Features to Reduce Risk of Fire**

#### **Monitoring**

Lithium ion batteries present a risk of fire primarily if overcharged. To avoid risk of fire, overcharging will be monitored and prevented through several levels of safety in the diagnostic system. Likewise, end of life replacement will be detectable through monitoring and notice to replace batteries (Southern Power Company 2016).

#### **Fire Suppression System**

To protect the battery system from risk of fire, the FM 200 Fire Suppression System (FSS) or comparable will be installed in the Phase 1 container and Phase 2 building (Southern Power 2016). The FSS employs FM-200 or comparable gas agent along with smoke detectors, control panel, alarm, piping and nozzles. FM-200 is a clean, colorless, and environmentally friendly fire suppression agent that is electrically non-conductive. FM-200 or comparable fire extinguishing systems are designed to be discharged within a room, area, or enclosure with the structural integrity to retain the agent. The system extinguishes flames primarily through heat absorption, leaving no residue, thus minimizing downtime after a fire.

The FM-200 Fire Suppression System includes the following:

- FM-200 Storage Components or comparable – Storage components consist of the cylinder assembly(s), which contains the FM-200 chemical agent.
- FM-200 Distribution Components or comparable – Distribution components consist of the discharge nozzles used to introduce the FM-200 into an associated piping system used to connect the nozzles to the cylinder assembly.
- Control Panel – This device monitors the condition of the electric actuator, detectors, warning devices, cylinder pressure, and any manual release and abort stations.
- Early Warning Detection and Alarm Devices – Early warning detection devices coupled with manual release and abort stations maximize system efficiency while audible and visual alarm devices alert staff of alarm conditions.

A fire suppression system agreed upon by Imperial County will be installed to extinguish possible ignition.

Implementation of the Project design features, coupled with the Samsung SDI ESS, will reduce impacts associated with hazard through upset/release of hazardous materials resulting from risk of fire during operation to **less than significant**.

#### **2013 California Fire Code Requirements**

In addition to the fire safety mechanisms included as part of design of the Battery Energy Storage System, the ICFD was consulted to provide input on the Project. As part of the ICFD's initial review, the following items were set forth as requirements for the Phase 1 container and the Phase 2 building in accordance with the 2013 CFC.

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### **Phase 1**

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with sections 503.1.1 through 503.1.3.

503.1.1 Buildings and facilities. Approved fire apparatus access road shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirement of this section and shall extend to within 150 feet (45,720 mm) of all portion of the facility and all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building or facility.

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6,096 mm), exclusive of shoulder, except for approved security gate in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4,115 mm).

503.2.3 Surface. Fire apparatus access road shall be designed and maintained to support the imposed load of fire apparatus and shall be surfaced so as to provide all weather driving capabilities.

608.7 Signage. Signs shall comply with Sections 608.7.1 and 608.7.2.

608.7.1 Equipment room and building signage. Doors into electrical equipment rooms or buildings containing stationary battery systems shall be provided with approved signs. The sign shall state that: 1. The room contains energized battery systems. 2. The room contains energized electrical circuits. 3. The battery electrolyte solutions, where present, are corrosive liquids.

608.7.2 Cabinet signage. Cabinets shall have exterior labels that identify the manufacturer and model number of the system and electrical rating (voltage and current) of the contained battery system. There shall be signs within the cabinet that indicate the relevant electrical, chemical and fire hazards.

608.8 Seismic protection. The battery systems shall be seismically braced in accordance with the California Building Code.

608.9 Smoke detection. An approved automatic smoke detection system shall be installed in accordance with Section 907.2 in rooms containing stationary battery systems.

906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, L, M, R-1, R-2 R-2.1, R-3.1, R-4 and S occupancies.

6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

907.2 Where required, new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFP A 72 shall be provided in new building and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

907.2.23 Battery rooms. An automatic smoke detection system shall be installed in areas containing stationary storage battery systems with a liquid capacity of more than 50 gallons (189 L).



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### *Phase 2*

All items required for the Phase 1 battery storage container in accordance with the 2013 CFC will also be required for the Phase 2 building with addition of the following requirements:

903.1 General. Automatic sprinkler systems shall comply with this section.

903.1.1 Alternative protection. Alternative automatic fire-extinguishing systems complying with Section 904 shall be permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and approved by the fire code official.

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

903.2.9 Group S-I. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-I occupancy where one of the following conditions exists:

1. A Group S-I fire area exceeds 12,000 square feet 1,115 square meters.

904.1 General. Automatic fire-extinguishing systems, other than automatic sprinkler systems, shall be designed, installed, inspected, tested and maintained in accordance with the provisions of this section and the applicable referenced standards.

904.2 Where required. Automatic fire-extinguishing systems installed as an alternative to the required automatic sprinkler systems of Section 903 shall be approved by the fire code official. Automatic fire-extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions allowed by other requirements of this code.

The required minimum is based off the 2013 CFC and Imperial County ordinances on rural water supply for firefighting (Loper 2016).

Compliance with the requirements of the 2013 CFC will reduce impacts associated with hazard through upset/release of hazardous materials resulting from risk of fire during operation to **less than significant**.

### ***Battery Storage and Handling***

The chemical composition of the lithium ion batteries includes cobalt oxide, manganese dioxide, nickel oxide, carbon, electrolyte, polyvinylidene fluoride, aluminum foil; copper foil, aluminum and inert materials. Only the electrolyte could react hazardously if mixed with water and carbon, which is graphite, and is also flammable. The operational crews would be trained on how to properly and safely handle the batteries with the proper personal protective equipment (PPE) based upon the material safety data sheets (MSDS) of the batteries.

Batteries removed from service will be returned to the manufacturer for recycling. In the event that cell damage is suspected, Samsung SDI's Customer Service Team and RMA service provider, CKS, will assist in removal and recycling of the affected equipment.

Applicable codes and standards for the storage and handling of lithium ion batteries are included in Chapter 6, Section 608 Stationary Storage Battery Systems of the 2013 CBC. Compliance with all applicable codes and standards as well as the 2013 CFC will reduce impacts associated with hazard through upset/release of hazardous materials resulting from battery storage and handling during construction, operation and decommissioning to **less than significant**.

### **Mitigation Measures**

None required.

### **Significance After Mitigation**

Not applicable.

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### 4.5.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

#### A. CUMULATIVE SETTING

The geographic scope of the cumulative setting for hazards and hazardous materials is a one-mile radius around the Project site. One mile is the standard American Society of Testing and Materials (ASTM) standard search distance for hazardous materials. This geographic scope encompasses an area larger than the Project site and provides a reasonable context wherein cumulative projects in the vicinity of the proposed Project could affect hazards and hazardous materials. Based on Table 3.0-1 (Past, Present and Probable Large-Scale Solar Projects in the vicinity of the Battery Energy Storage System) in Chapter 3.0, Introduction to the Analysis and Assumptions Used, no other cumulative project from the list is within the geographic scope.

#### B. CUMULATIVE IMPACTS AND MITIGATION MEASURES

##### **Cumulative Hazards and Hazardous Materials Impact**

**Impact 4.5.3** The proposed Battery Energy Storage System, in combination with other Past, Present and Probable Large-Scale Projects in the vicinity of the Campo Verde Battery Energy Storage System, would not increase the density of development in the area because no other cumulative projects are within the cumulative geographic scope. Thus, the proposed Project's contribution to cumulative hazards and hazardous materials impacts is considered **less than cumulatively considerable**.

None of the cumulative projects shown on Figure 3.0-1 in Chapter 3.0 are within a one-mile radius of the Project site. Accordingly, none of the cumulative projects are within the geographic scope for the consideration of cumulative effects from hazardous materials sites.

Potential for risk of upset is localized and site specific. Potential fire risk impacts are not expected to combine with similar impacts of past, present and probable large-scale solar projects in the vicinity of the Campo Verde Battery Energy Storage System. The Project includes design features to minimize the impacts of the proposed Battery Energy Storage System relative to hazards and hazardous materials. In addition, the Project is required to comply with the 2013 CFC as well as all applicable codes and standards. With implementation of the proposed design features and compliance with applicable codes and standards, Project impacts to hazards and hazardous materials would be less than significant. Likewise, the Project's contribution to cumulative hazardous materials impacts is **considered less than cumulatively considerable**.

##### **Mitigation Measures**

None required.

##### **Significance After Mitigation**

Not applicable.

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