5. ALTERNATIVES TO THE PROPOSED PROJECT

5.1. INTRODUCTION

The CEQA Guidelines, at §15126.6(a), stipulate the following with respect to consideration and evaluation of project alternatives:

> "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation."

This section contains separate alternative analyses for the two main project components – the Westlands Solar Park, and the WSP Gen-Tie Corridors. The alternatives evaluation process for the main project components started with the identification of a reasonable range of alternatives which would likely achieve most of the project objectives for each respective project component. In addition, an evaluation of the No Project Alternative, as required under CEQA, was conducted for each of the two main project components. Additional alternatives, which were considered in the initial screening of alternatives but not carried forward for detailed analysis, are summarized along with the reasons they were not analyzed further.

5.2. ALTERNATIVES TO WESTLANDS SOLAR PARK

The purpose of the alternatives analysis under CEQA is to: "…focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project…" (CEQA Guidelines, Section 15126.6(b)). As discussed throughout Chapter 3 of this EIR, the potential impacts associated with WSP solar development can all be avoided or mitigated to less-than-significant levels through mitigation measures identified in this EIR. Since the Westlands Solar Park would result in no significant unavoidable impacts, it could be argued that analysis of alternatives which would avoid or lessen significant project impacts would be unnecessary and not required under CEQA. Nevertheless, the following alternatives are evaluated in order to provide a comparison of relative impact levels between the alternatives and the Westlands Solar Park.

1. No Project Alternative: This alternative assumes that the WSP plan area would not be developed for utility-scale solar, but instead would consist of continuation of the existing agricultural operations within the plan area, with current cropping patterns continuing into the future.

2. Reduced Project Size Alternative: This alternative assumes a 30 percent reduction in the size of the WSP plan area, resulting in solar PV development over approximately 14,600 acres with a total generating capacity of about 1,220 MW. The Reduced Project Size Alternative would comprise the

eastern and southern areas of the WSP plan area (i.e., Master Plan Subareas 1 through 8 on Figure PD-3). This would include Subareas 1 through 4 located generally north of Nevada Avenue and east of 25th Avenue, and Subareas 5 through 8 located south of Nevada Avenue. It is assumed that the Reduced Project Size Alternative would be phased over a period of 8 years, with an average installation rate of about 150 MW per year, and maximum buildout rate of 250 MW in any given year.

3. Alternative Project Location: The alternative project site consists of approximately 21,000 contiguous acres of WWD-owned retired farmland along both sides of SR-33, between City of Mendota on the north and Manning Avenue on the south (see Figure ALT-1).

5.2.1. PROJECT OBJECTIVES OF WESTLANDS SOLAR PARK

The following is a restatement of the project objectives for the WSP Master Plan as set forth in Section 2.2. of this EIR.

- Generate approximately 2,000 megawatts of clean, renewable electrical power utilizing solar photovoltaic (PV) technology and to deliver the electrical output to the State's electrical grid. (The estimated overall generating capacity for WSP could increase with improvements to solar PV module efficiency during the course of the buildout period for WSP.)

- Contribute to the solution of area-wide agricultural drainage problems by retiring all of the lands within the WSP plan area and providing productive reuse of those lands for renewable energy production as an alternative to irrigated agriculture.

- Provide for the economically viable and environmentally beneficial reuse of the WSP plan area's physically impaired agricultural soils.

- Contribute to the reduction in dependence on the aquifer for supplemental irrigation.

- Reduce cumulative salt loading to the groundwater resource.

- Constructively address the chronic shortage of surface water deliveries by removing the least productive farmland from irrigation by imported water, and by facilitating the redirection of scarce surface water allocations from the WSP plan area to more productive agricultural land within Westlands Water District that is not physically impaired by saline soils, high groundwater, or high selenium or other mineral concentrations.

- Provide utility-scale power generation on physically-impaired farmland in order to reduce pressure for renewable energy development on prime agricultural soils elsewhere.

- Provide for development of utility-scale solar generation facilities on highly disturbed lands which provide minimal habitat value for wildlife.

- Provide a low-impact alternative location for the siting of utility-scale renewable energy development that might otherwise occur on lands with high habitat value for protected wildlife species (such as the Mojave Desert).

- Provide utility-scale solar generation in a location that is already served by high-voltage transmission lines.

- Help implement the State's goal of increased electrical generation with renewable resources under California's Renewables Portfolio Standard (RPS).

- Help implement the California Renewable Energy Transmission Initiative (RETI) by providing for the development of up to 5,000 MW of the solar resource within the Westlands CREZ. (It is noted that the Westlands CREZ received the highest state-wide environmental ranking among all CREZs designated through the RETI process.)

- Contribute to overall reduction in greenhouse gas emissions by generating electricity that is not based on the combustion of fossil fuel, pursuant to The California Global Warming Solutions Act (AB 32), as extended and supplemented by SB 32 in 2016.

- Create new employment opportunities for local residents.

- Positively contribute to the local economy through stimulation of economic activity such as creation of secondary multiplier employment and the purchase of materials and services.

- Provide community benefits through increased property tax and sales tax revenues.

The project alternatives are described and evaluated below. This is followed by the identification of the environmentally superior alternative, as required under CEQA.

5.2.2. NO PROJECT ALTERNATIVE

The CEQA Guidelines require, in Section 15126.6(e)(1), that the "specific alternative of 'no project' shall…be evaluated along with its impact." Therefore, this chapter includes a description and evaluation of the environmental impacts associated with the No Project Alternative, relative to those resulting from the proposed project, including a discussion of the ability of the No Project Alternative to meet the project objectives. The CEQA Guidelines state: "[t]he 'no project' analysis shall discuss existing conditions…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved…" (Section 15126.6(e)(2))(emphasis added). This section could be interpreted to require the discussion of two 'no project' alternatives: the 'no build' alternative and the 'reasonably foreseeable development' alternative, in cases where these are not the same scenario. In this case, the reasonably foreseeable development scenario consists of no solar development. It is reasonable to expect that, in the event the WSP project is not approved, the plan area would continue to be farmed and not developed for an alternative land use. Since there is no other 'reasonably foreseeable development' scenario in this case, this chapter considers the 'no build' scenario as the 'reasonably foreseeable development' scenario. Thus only one 'No Project' alternative is considered.

The No Project Alternative consists of not constructing the WSP solar facilities and continuing the farming operations on the WSP plan area without modifications to the site. The levels of impacts associated with the No Project Alternative are discussed below, relative to the levels of impacts associated with the proposed project.

Aesthetics. The planned WSP solar development would change the character of the WSP plan area from cultivated farmland to solar PV generating facilities. As discussed in Section *3.1. Aesthetics*, the overall visual impacts of WSP solar development would be less than significant. Under the No Project Alternative, there would be no visual change to the site, and thus the potential for visual change would be avoided and there would be no impact. Therefore, the No Project Alternative would result in a lower level of visual impacts than WSP solar development.

Agricultural Resources. The planned WSP solar development would occur on lands classified by the State as "Farmland," including a small amount of Prime Farmland, and substantial amounts of Farmland of Statewide Importance (see Section *3.2. Agricultural Resources*). However, due to adverse physical conditions which place severe constraints on agricultural productivity on these lands, and the fact that agricultural production would continue concurrently with the solar uses, and considering that the short-term solar uses would retain the agricultural soils in place, and that the sites would be restored to their pre-project condition upon decommissioning, the impact upon "Farmland" would be less than significant. As noted, the soils of the WSP plan area are impaired by high groundwater levels, poor drainage, and high salinity, which result diminished productivity due to poor yields and limitation of cropping choices to salt-tolerant crops. Under WSP solar development, approximately the on-site farmlands would be retired from irrigated agriculture, thus ending the salt loading and groundwater overdraft, providing for the reallocation of surface water deliveries from the retired lands of the plan area to non-impaired farmland to the west, which would thus obtain some relief from chronic surface water shortages and further reduce the need for groundwater pumping. Under the No Project alternative, ongoing farming would contribute to cumulative soil degradation and increased salinization of groundwater, along with continued overdraft of groundwater. In summary, the No Project Alternative would result in a greater level of impact to agricultural resources than WSP solar development.

Air Quality. During the construction phases, the planned WSP solar development would result in an incremental increase in air emissions due to on-site construction activity and from traffic generated by delivery trucks and commuting construction workers. However, the air quality impacts occurring during construction would be reduced due to the minor amount of grading required on the flat terrain, and would be mitigated to less-than-significant levels by mitigation measures implemented in conformance with Air District requirements. Once operational, the solar generating facilities would generate very low levels of air pollutants due to the low levels of operational and maintenance activities (see Section *3.3. Air Quality and Climate Change*). The overall air quality impacts of WSP solar development would be less than significant, increased air emissions would be avoided under the No Project Alternative. The No Project Alternative would result in no increases in air emissions, although particulate emissions would continue due to plowing and tilling of soil. While the overall air quality impacts of WSP solar development would be less than significant, the No Project Alternative would avoid increased air emissions relative to base conditions. However, under base conditions, the agricultural plowing and tilling of soil would result in on-going dust generation, while operation of the WSP solar facilities would generate almost no dust after construction is complete. Thus the No Project Alternative would result in a lower level of dust emissions than WSP solar development during construction, but would result in higher levels of dust emissions during operations. Therefore, the emissions of fugitive dust under the No Project Alternative would be generally similar to the overall dust emissions resulting from the WSP solar facilities. In addition, the No

Project alternative would involve continued exhaust emissions from farm machinery and equipment. The WSP solar facilities would involve elevated exhaust emissions during construction but very low levels of exhaust emissions during operation. Thus overall exhaust emissions under the No Project alternative would be similar to overall exhaust emissions with WSP solar development. In summary, the air quality impacts associated with the No Project alternative would be similar to those associated with WSP solar development.

Biological Resources. The planned WSP solar development would result in potential impacts to wildlife species such as burrowing owls, although these impacts would be reduced to less-than-significant levels by mitigation measures to be implemented in conjunction with each solar project (see Section *3.4. Biological Resources*). The No Project Alternative would avoid impacts to biological resources. Thus the No Project Alternative would result in a lower level of the biological impacts than WSP solar development.

Cultural and Paleontological Resources. There are no known historic, archaeological, or paleontological resources present within the WSP plan area, and any potential impacts to previously undiscovered resources would be mitigated by contingent measures to be implemented in the event any artifacts or fossils are encountered during grading and excavation for each solar project, thereby reducing any potential project impacts to less-than-significant levels (see Sections *3.5. Cultural Resources* and *3.11. Paleontological Resources*). Under the No Project Alternative, the potential for impacts to cultural resources would be avoided. Therefore, the No Project Alternative would result in lower levels of impacts to cultural resources than WSP solar development.

Geology and Soils. WSP solar development would be exposed to geologic and soils hazards, although any potential hazards would be mitigated to less-than-significant levels through mitigation measures to be implemented in conjunction with each solar project (see Section *3.6. Geology and Soils*). Under the No Project Alternative, potential geologic and soils impacts would be avoided. Therefore, the No Project Alternative would result in a lower level of geologic and soils impacts than WSP solar development.

Greenhouse Gas Emissions and Climate Change. Under the No Project Alternative, the current farming operations would continue, resulting in no change in greenhouse gas emissions from the plan area. While farming operations involve the combustion of fossil fuels in the operation of machinery and in the manufacture and transport of fertilizers and pesticides, some of these emissions are offset by the carbon sequestration provided by growing crops. Under the planned WSP solar development, the greenhouse gases emitted in the construction and operation of solar generating facilities would be more than offset by the substantial amount of avoided emissions from a fossil-fueled power plant with the same generating capacity (see Section *3.3. Air Quality and Climate Change*). Thus, although the No Project Alternative would result in no increase in greenhouse gas emissions, WSP solar development would result in a substantial avoidance of greenhouse gas emissions overall and thus would have a significant beneficial effect in terms of reducing the potential for global warming. Therefore, the No Project Alternative would result in a greater level of climate change impacts than the planned WSP solar development.

Hazards and Hazardous Materials. The WSP solar projects would involve the use of various fuels and materials during construction and operation which are classified as hazardous materials. However, the hazardous materials management plans and response plans that would be required for each solar facility would be carried out in case of accidental spill or unauthorized release of hazardous materials, resulting in a less-than-significant hazardous materials impact. For the WSP solar projects, the potential for residual contamination from previous agricultural and petroleum industry operations within the plan

area would be fully investigated and remediated as appropriate. Thus, under the planned WSP solar development, the potential for contamination from past and future sources of hazardous materials would be reduced to less-than-significant levels (see Section *3.7. Hazards and Hazardous Materials*).

Under the No Project Alternative there would be no increase in the potential for hazardous materials discharges and contamination. Although the past and current farming operations involved the storage and use of fuels, pesticides, herbicides, and fertilizers, and included exploratory and production drilling for petroleum, it is unlikely that residual contamination is present in hazardous concentrations. The potential for future site contamination under the No Project Alternative is also low given that agricultural operations would handle and utilize agricultural chemicals in a safe manner as directed in manufacturers' specifications. However, some risk of hazardous material contamination would remain under the No Project Alternative.

In summary, the potential for contamination by hazardous materials is low for both the planned WSP solar development and the No Project Alternative, with no clear difference between them in terms of impact level. Thus the No Project Alternative would result in a similar of potential hazardous materials impacts compared to WSP solar development.

Hydrology and Water Quality: WSP solar development would result in very small increases in site coverage by impervious surfaces, and would not result in off-site discharges of stormwater runoff. The potential for erosion and sedimentation during grading and construction would be minimized through standard erosion control measures, as required (see Section *3.8. Hydrology and Water Quality*). The No Project Alternative would result in no changes to site drainage and hydrology. Thus, while potential drainage and water quality impacts would be less than significant under WSP solar development, there would be no impact would under the No Project Alternative. Thus the No Project Alternative would result in a lower level of hydrology and water quality impacts than the planned WSP solar development.

Land Use and Planning: Under the planned WSP solar development, the potential for land use impacts such as incompatibility with nearby residential uses, agricultural activities, and NAS Lemoore flight operations would be less than significant (see Section *3.9. Land Use and Planning*). Under the No Project Alternative, there would be no change in land use, and no land use impacts. Thus the No Project Alternative would result in a lower level of land use impact than WSP solar development.

Noise: WSP solar development would result in increased noise from on-site grading and construction, as well as increased traffic noise along roadways used for truck deliveries and commute trips by construction workers, although the noise impacts from these construction-related activities would be less than significant. Once completed, the noise from solar facility operations would be negligible (see Section *3.10. Noise*). The No Project Alternative would result in no increase in ambient noise levels. Thus the No Project Alternative would result in a lower level of noise impacts than WSP solar development.

Public Services: The planned WSP solar projects would result in a small increase in demand for public services such as police and fire protection, and this impact would be less than significant (see *Section 3.12. Public Services*). The No Project Alternative would generate no increase in demand for fire and police services. Thus the No Project Alternative would result in a lower level of the public services impacts than the WSP solar projects.

Transportation/Traffic: During the construction phases, the planned WSP solar projects would result in generation of commute trips to their sites by construction workers, and truck trips for delivery of

equipment and materials. However, construction traffic would be temporary and the roadway network has adequate capacity to accommodate the short-term construction traffic volumes, although a traffic management plan would be required to manage large loads and slow moving vehicles. During project operations, the small operations and maintenance staffs would generate minimal traffic. The overall traffic impacts from WSP solar development would be less than significant with implementation of construction traffic management plans (see Section *3.13. Transportation/Traffic*). The No Project Alternative would result in no additional traffic generation and would have no traffic impacts. Thus, the No Project Alternative would result in a lower level of the traffic impacts than the WSP solar projects.

Utilities and Service Systems: The WSP solar facilities would require water supply, wastewater disposal, and solid waste disposal (see Section *3.14. Utilities and Service Systems*). The WSP impact on these utilities and service systems are summarized below, in comparison with the No Project Alternative.

Water Supply

The WSP solar projects would require water supply during both the construction and operational phases. During grading and construction, water would be needed for dust control, cleaning of equipment and vehicles, and domestic use. As discussed in Section *3.14. Utilities and Service Systems*, construction water requirements would be approximately 0.2 acre-feet per acre of construction. It is expected that existing on-site agricultural wells would provide non-potable water for non-domestic uses during construction, and that potable water for consumption by construction workers would be provided by bottled water brought to the site. Operational water demands would include water for periodic panel washing and general maintenance and cleaning. It is estimated that operational water requirements would average 0.135 acre-feet per acre per year. Operational water would be provided by WWD from imported surface water deliveries. No groundwater would be pumped to support PV solar operations.

Under the No Project Alternative, the ongoing farming operations include approximately 11,000 acres that would remain in irrigated agriculture and would continue to require substantial volumes of irrigation water. At an average irrigation rate of 2.5 acre-feet per acre, this would be 12.5 times greater than the average water demand from construction of WSP solar projects, and 18.5 times greater than the average water demand from solar facility operations. Assuming that Westland growers would continue to receive an annual average of about 51 percent of their CVP allocation, approximately 32 percent of the irrigation water would consist of imported water and the remaining irrigation needs would be provided by pumped groundwater. The continued pumping of groundwater at these annual volumes would exacerbate ongoing overdraft conditions, resulting on ongoing impacts to the aquifer.

In summary, the No Project Alternative would result in substantially greater water demands than the WSP solar projects, and would result in continued overdraft of the aquifer, while the WSP solar projects would not utilize any groundwater for project operations. Therefore, the No Project Alternative would result in substantially greater water supply impacts than the proposed WSP project.

Wastewater

The Wastewater disposal for the WSP solar projects would be provided by portable chemical toilets during both construction and operation, with off-site disposal by sanitary contractors. Thus, the WSP solar projects would result in less than significant impacts related to wastewater disposal. Under the No Project Alternative, there would be no demand for wastewater disposal, and no associated impacts.

Therefore, the No Project Alternative would result in lower level of wastewater disposal impact than the planned WSP solar development.

Solid Waste

With WSP solar development, solid waste would be generated during construction and operation of the solar generating facilities. However, there are no constraints to solid waste collection, and there is sufficient landfill capacity to accommodate non-recyclable waste from the solar facilities, so the impact would be less than significant. Under the No Project Alternative, there would be no increase in solid waste generation, and thus there would be no impact on solid waste disposal facilities. Therefore, the No Project Alternative would result in a lower level of solid waste disposal impact than the WSP solar projects.

In summary, the water supply impacts associated with the No Project Alternative would be substantially greater than under planned WSP solar projects, while the No Project Alternative would result in lower levels of wastewater disposal and solid waste disposal impacts than the WSP solar projects.

In summary, the No Project Alternative would result in lower levels of impact than WSP solar development in some categories, but would result in greater or similar levels of impact in others. The No Project Alternative would result in relatively lower levels of impact in the categories of aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services, traffic, wastewater disposal, solid waste disposal, although all of these impacts would be less than significant or fully mitigable with WSP solar development. The No Project Alternative would result in substantially greater levels of impact than WSP solar development in the categories of agricultural resources, greenhouse gas emissions, and water supply, and similar levels of impact to WSP solar development in terms of air quality, and hazards and hazardous materials. On balance, while the No Project Alternative would result in somewhat lower impacts in several categories, it would result in substantially greater impacts in others such as agricultural resources, greenhouse gas emissions/climate change, and water supply. In addition, since the planned WSP solar development results in no significant and unavoidable impacts, the No Project Alternative would not eliminate or substantially reduce such impacts. Therefore, the No Project Alternative would not represent an environmentally superior alternative to the planned WSP solar development. Moreover, the No Project Alternative would not fulfill any of the project objectives, as restated at the beginning of this chapter, particularly the objectives of helping to meet the state's renewable energy and greenhouse gas reduction targets, retiring all of the physically-impaired lands of the WSP plan area from irrigated agriculture, and maximizing reallocation of scarce imported water resources to more productive agricultural operations.

5.2.3. REDUCED PROJECT SIZE ALTERNATIVE

This alternative assumes a 30 percent reduction in the size of the WSP plan area, resulting in solar PV development over approximately 14,600 acres with a total generating capacity of about 1,220 MW. The Reduced Project Size Alternative would comprise the eastern and southern areas of the WSP plan area (i.e., Master Plan Subareas 1 through 8 on Figure PD-3). This would include Subareas 1 through 4 located generally north of Nevada Avenue and east of 25th Avenue, and Subareas 5 through 8 located south of Nevada Avenue. It is assumed that the Reduced Project Size Alternative would be phased over a period of 8 years, with an average installation rate of about 150 MW per year, and maximum buildout rate of 250 MW in any given year. The remaining 6,338 acres that would not be developed for solar PV facilities would remain in agricultural cultivation.

Aesthetics: The proposed WSP project would change the character of the WSP site from cultivated farmland to solar PV generating facilities. While the changes would be noticeable from existing residences nearby and from public vantage points along roadways passing through the plan area, the overall visual impacts associated with WSP solar development would be less than significant (see *Section 3.1. Aesthetics*). Under the Reduced Project Size Alternative, the visual change to the western one-third of the plan area would be avoided. As viewed from the Shannon Ranch and Stone Land Company Ranch, which are adjacent to the western part of the plan area, the nearest solar development would be approximately 1.5 miles to the east. Along Avenal Cutoff Road, most of the solar development planned along the roadway would not occur under the Reduced Project Size Alternative, so the overall visibility of the solar development from public vantage points would be reduced. Therefore, while the visual impacts under the planned WSP solar development would be less than significant, the level of visual impact associated with the Reduced Project Size Alternative would be lower than the visual impact associated with the planned WSP solar development.

Agricultural Resources: The planned WSP solar development would occur on lands classified by the State as "Farmland," including a small amount of Prime Farmland, and substantial amounts of Farmland of Statewide Importance (see Section *3.2. Agricultural Resources*). However, due to adverse physical conditions which place severe constraints on agricultural productivity on these lands, and the fact that agricultural production would continue concurrently with the solar uses within the solar facility sites, and considering that the solar uses would retain the agricultural soils in place, and that the sites would be restored to their pre-project condition upon decommissioning, the impact upon "Farmland" would be less than significant. As noted, the soils of the WSP plan area are impaired by high groundwater levels, poor drainage, and high salinity, which result diminished productivity due to poor yields and limitation of cropping choices to salt-tolerant crops. Under WSP solar development, approximately 11,119 acres would be retired from irrigated agriculture (note: 9,819 acres are already retired), thus ending the salt loading and groundwater overdraft within the plan area, providing for the reallocation of surface water deliveries from the retired lands of the plan area to non-impaired farmland to the west, which would thus obtain some relief from chronic surface water shortages and further reduce the need for groundwater pumping. Under the Reduced Project Size Alternative, approximately 4,781 acres would be newly retired, while farming would continue on the western 6,338 acres. This continued farming would contribute to cumulative soil degradation and increased salinization of groundwater, along with continued overpumping of groundwater. In summary, the Reduced Project Size Alternative would prolong and exacerbate the degradation of soils and groundwater on about 6,338 acres of physically-impaired land, while the proposed WSP project would retire this farmland, thus ending the cumulative resource impacts while putting scarce imported water supplies to better use on productive farmland, and enhancing its long-term viability. Therefore, the level of impacts to agricultural resources under the Reduced Project Size Alternative would be greater than under the planned WSP solar development.

Air Quality: During the construction phases, the planned WSP solar development would result in an incremental increase in air emissions due to on-site construction activity and from traffic generated by delivery trucks and commuting construction workers. However, the air quality impacts occurring during construction would be mitigated to less-than-significant levels by mitigation measures implemented in conformance with Air District requirements. Once operational, the solar generating facilities would generate very low levels of air pollutants due to the low levels of operational and maintenance activities (see Section *3.3. Air Quality and Climate Change*). Under the Reduced Project Size Alternative, the overall lower levels of activity during construction and operation within the solar development area would result in lower overall air emissions compared to the proposed WSP project. However, continued agricultural

activity on the undeveloped 6,338 acres would generate dust emissions during agricultural operations such as plowing and tilling, and under high wind conditions when soil is exposed. These emissions would continue indefinitely, and would likely more than balance the construction emissions from solar development in the long run. Thus, the overall level of air quality impacts resulting from the Reduced Project Size Alternative would be similar to the air quality impacts associated with WSP solar development.

Biological Resources: The planned WSP solar development would result in potential impacts to wildlife species such as burrowing owls and their habitat, although these impacts would be reduced to less-than-significant levels by mitigation measures to be implemented in conjunction with each solar project (see Section *3.4. Biological Resources*). Under the Reduced Project Size Alternative, fewer acres of foraging habitat would be developed for solar facilities. Thus, while the planned WSP solar development would not result in significant reductions in habitat, the Reduced Project Size Alternative would result in a relatively lower impact in terms of habitat reduction. Therefore, the Reduced Project Size Alternative would result in a lower level of impact to biological resources than the planned WSP solar development.

Cultural and Paleontological Resources: There are no known historic, archaeological, or paleontological resources present within the WSP plan area, and any impacts to previously undiscovered resources would be mitigated by contingent measures to be implemented in the event any artifacts or fossils are encountered during grading and excavation for the solar projects, thereby reducing any potential project impacts to less-than-significant levels (see Sections *3.5. Cultural Resources* and *3.11. Paleontological Resources*). Under the Reduced Project Size Alternative, the potential impacts to cultural resources would be avoided on about one-third of the site. Therefore, the level of cultural and paleontological resource impacts associated with the Reduced Project Size Alternative would be lower than the cultural resources impacts associated with the planned WSP solar development.

Geology and Soils: WSP solar development would be exposed to geologic and soils hazards, although any potential hazards would be mitigated to less-than-significant levels through mitigation measures to be implemented in conjunction with each solar project (see Section *3.6. Geology and Soils*). Under the Reduced Project Size Alternative, potential geologic and soils would be avoided on about one-third of the WSP plan area would remain undeveloped. Therefore, the overall level of geologic and soils impacts resulting from the Reduced Project Size Alternative would be lower than the geologic and soils impacts associated with the planned WSP solar development.

Greenhouse Gas Emissions and Climate Change. Under the planned WSP solar development, the greenhouse gases emitted in the construction and operation of solar generating facilities would be more than offset by the substantial amount of avoided emissions from a fossil-fueled power plant with the same generating capacity (see Section *3.3. Air Quality and Climate Change*). Under the Reduced Project Size Alternative, the current farming operation would continue over one-third of the plan area, resulting in no change in greenhouse gas emissions from that area. The overall greenhouse gas reduction achieved by the Reduced Project Size Alternative would be substantially less than the greenhouse gas reduction from the planned WSP solar projects. Therefore, the climate change impacts associated with the Reduced Project Size Alternative would be greater than the climate change impacts associated with the planned WSP solar development.

Hazardous Materials: The WSP solar projects would involve the use of various fuels and materials during construction and operation which are classified as hazardous materials. However, the hazardous materials management plans and response plans that would be required for each solar facility would be carried out in case of accidental spill or unauthorized release of hazardous materials, resulting in a less-

than-significant hazardous materials impact. For the WSP solar projects, the potential for residual contamination from previous agricultural and petroleum industry operations within the plan area would be fully investigated and remediated as appropriate. Thus, under the planned WSP solar development, the potential for contamination from past and future sources of hazardous materials would be reduced to less-than-significant levels (see Section *3.7. Hazards and Hazardous Materials*).

Under the Reduced Project Size Alternative, there would be a reduced potential for hazardous materials discharges and contamination relative to the planned WSP solar development. The potential for future site contamination within the agricultural areas of the Reduced Project Size Alternative is low given that agricultural operations would handle and utilize agricultural chemicals in a safe manner as directed in manufacturers' specifications. However, some risk of hazardous material contamination would remain within the agricultural areas of the Reduced Project Size Alternative.

In summary, the potential for contamination by hazardous materials is low for both the planned WSP solar development and the Reduced Project Size Alternative, with no clear difference between them in terms of impact level. Thus the Reduced Project Size Alternative would result in a similar of potential hazardous materials impacts compared to planned WSP solar development.

Hydrology and Water Quality: WSP solar development would result in very small increases in site coverage by impervious surfaces, and would not result in off-site discharges of stormwater runoff. The potential for erosion and sedimentation during grading and construction would be minimized through standard erosion control measures, as required (see Section *3.8. Hydrology and Water Quality*). The Reduced Project Size Alternative would result in no changes to site drainage and hydrology over about one-third of the plan area. Thus, while potential drainage and water quality impacts would be mitigated to less-than-significant levels under the planned WSP solar development, they would be avoided on about one-third of the plan area under the Reduced Project Size Alternative. Therefore, the level of hydrology and water quality impacts associated with the Reduced Project Size Alternative would be lower than the hydrology and water quality impacts associated with planned WSP solar development.

Land Use and Planning: Under the planned WSP solar development, the potential for land use impacts such as incompatibility with nearby residential uses, agricultural activities, and NAS Lemoore flight operations would be less than significant (see Section *3.9. Land Use and Planning*). The Reduced Project Size Alternative would result in a smaller development footprint, and the western areas of WSP adjacent to the existing Shannon Ranch and Stone Land Company Ranch would not be developed. This alternative would involve a lower overall level of construction and operational activity than the planned WSP, particularly in the vicinity of existing residents, of which the nearest would be 0.5 miles from nearest solar projects. In terms of land use compatibility with nearby residential uses, the lower levels of noise and visual effects to existing dwellings associated with the Reduce Project Size Alternative would indicate reduced potential for land use incompatibility. In terms of compatibility with adjacent agricultural operations, the Reduced Project Size Alternative would have a smaller boundary with adjacent farmlands, and thus would have a lower potential for conflicts between solar and farming operations. In terms of compatibility with NAS Lemoore flight operations, the Reduced Project Size Alternative would have a smaller area within the flight path of aircraft operations and thus would have a lower potential for conflict with those operations. Although the planned WSP solar development would not result in significant land use impacts, the level of land use impact under the Reduced Project Size Alternative would be lower than those associated with the planned WSP solar development.

WSP solar development would result in increased noise from on-site grading and construction, as well as increased traffic noise along roadways used for truck deliveries and commute trips by construction workers, although the noise impacts from these construction-related activities would be less than significant. Once completed, the noise from solar facility operations would be negligible (see Section *3.10. Noise*). The No Project Alternative would result in no increase in ambient noise levels. Thus, the No Project Alternative would result in a lower level of noise impacts than WSP solar development.

Noise: During construction, the planned WSP solar development would result in increased noise from on-site grading and construction, as well as increased traffic noise along roadways used for truck deliveries and commute trips by construction workers. The noise levels generated during construction would be less than significant at any off-site residential receptor location. Once completed, the noise from solar facility operations would be negligible (see Section *3.10. Noise*). The Reduced Project Size Alternative would result in a smaller development footprint, and the western areas of WSP adjacent to the existing Shannon Ranch and Stone Land Company Ranch would not be developed. This alternative would involve a lower overall level of construction and operational activity than the planned WSP, particularly in the vicinity of existing residents, of which the nearest would be 0.5 miles from nearest solar projects. Thus, although the noise impacts resulting from the planned WSP solar development would be less than significant, the Reduced Project Size Alternative would result in less noise at sensitive receptor locations. Therefore, the level of noise impacts associated with the Reduced Project Size Alternative would lower than the noise impacts associated with the planned WSP solar development.

Public Services: The planned WSP solar projects would result in a small increase in demand for public services such as police and fire protection, and this impact would be less than significant (see *Section 3.12. Public Services*). The Reduced Project Size Alternative would generate lower demand for these services due to the smaller overall size of the solar operations. Thus, the level of impacts to public services under the Reduced Project Size Alternative would be lower than the public service impacts associated with WSP solar projects.

Transportation/Traffic: During the construction phases, the planned WSP solar projects would result in generation of commute trips to their sites by construction workers, and truck trips for delivery of equipment and materials. However, construction traffic would be temporary and the roadway network has adequate capacity to accommodate the short-term construction traffic volumes, although a traffic management plan would be required to manage large loads and slow moving vehicles. During project operations, the small operations and maintenance staffs would generate minimal traffic. The overall traffic impacts from WSP solar development would be less than significant with implementation of construction traffic management plans (see Section *3.13. Transportation/Traffic*). The Reduced Project Size Alternative would result in about the same volume of construction traffic at any given time, since it is likely that the pace of construction would be similar to that expected for the planned WSP solar projects. Thus the same mitigation in the form of construction traffic management would apply to the Reduced Project Size Alternative. However, the overall duration of construction would be shorter, so the length of time that construction traffic would be on vicinity roadways would be less. Thus, although the construction traffic volumes generated by planned WSP solar development would be less than significant, overall traffic generation would be less under the Reduced Project Size Alternative due to the shorter buildout period. Therefore, the level of traffic impact resulting from the Reduced Project Size Alternative would be lower than the construction traffic impacts associated with the planned WSP solar development.

During solar facility operations under the planned WSP solar development, the small operations and maintenance staffs would generate minimal traffic. Due to the smaller overall size of the Reduced Project

Size Alternative, the overall operational traffic generation upon WSP buildout would be relatively lower. Therefore, the level of operational traffic impacts associated with the Reduced Project Size Alternative would be lower than the operational traffic impacts associated with the planned WSP solar development.

Utilities and Service Systems: The WSP solar facilities would require water supply, wastewater disposal, and solid waste disposal (see Section *3.14. Utilities and Service Systems*). The WSP impact on these utilities and service systems are summarized below, in comparison with the No Project Alternative.

Water Supply

The WSP solar projects would require water supply during both the construction and operational phases. During grading and construction, water would be needed for dust control, cleaning of equipment and vehicles, and domestic use. As discussed in Section *3.14. Utilities and Service Systems*, construction water requirements would be approximately 0.2 acre-feet per acre of construction. It is expected that existing on-site agricultural wells would provide non-potable water for non-domestic uses during construction, and that potable water for consumption by construction workers would be provided by bottled water brought to the site. Operational water demands would include water for periodic panel washing and general maintenance and cleaning. It is estimated that operational water requirements would average 0.135 acre-feet per acre per year. Operational water would be provided by WWD from imported surface water deliveries. No groundwater would be pumped to support PV solar operations.

Under the Reduced Project Size Alternative, the undeveloped 4,781 acres would remain in irrigated agriculture and would continue to require substantial volumes of irrigation water. At an average irrigation rate of 2.5 acre-feet per acre, this would be 12.5 times greater than the average water demand from construction of WSP solar projects, and 18.5 times greater than the average water demand from solar facility operations. Assuming that Westland growers would continue to receive an annual average of about 51 percent of their CVP allocation, approximately 32 percent of the irrigation water would consist of imported water and the remaining irrigation needs would be provided by pumped groundwater. The continued pumping of groundwater at these annual volumes would exacerbate ongoing overdraft conditions, resulting on ongoing impacts to the aquifer.

In summary, the Reduce Project Size Alternative would result in substantially greater water demands than the planned WSP solar projects, and would result in continued overdraft of the aquifer, while the planned WSP solar projects would not utilize any groundwater for project operations. Therefore, the Reduced Project Size Alternative would result in substantially greater water supply impacts than the proposed WSP project.

Wastewater

The Wastewater disposal for the planned WSP solar projects would be provided by portable chemical toilets during both construction and operation, with off-site disposal by sanitary contractors. Thus, the WSP solar projects would result in less than significant impacts related to wastewater disposal. Under the Reduced Project Size Alternative, there would be lower demand for wastewater disposal. Therefore, the Reduced Project Size Alternative would result in lower level of wastewater disposal impact than the planned WSP solar development.

Solid Waste

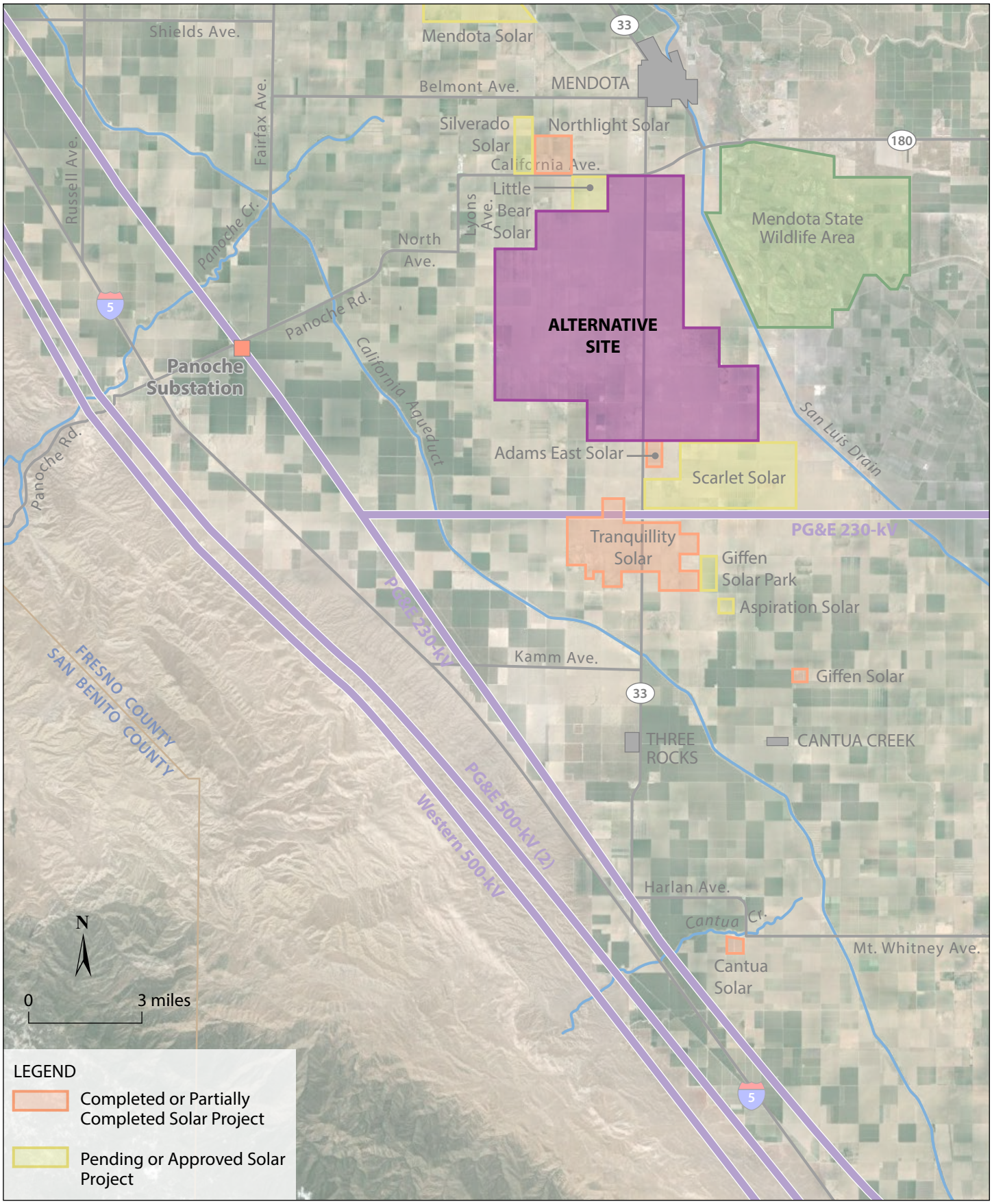
With WSP solar development, solid waste would be generated during construction and operation of the solar generating facilities. However, there are no constraints to solid waste collection, and there is sufficient landfill capacity to accommodate non-recyclable waste from the solar facilities, so the impact would be less than significant. Under the Reduced Project Size Alternative, the increase in solid waste generation would be less, and thus there would have less impact on solid waste disposal facilities. Therefore, the Reduced Project Size Alternative would result in a lower level of solid waste disposal impact than the planned WSP solar development.

In summary, the Reduced Project Size Alternative would result in lower levels of impact than the planned WSP solar development in some categories, but would result in greater or similar levels of impact in others. The Reduced Project Size Alternative would result in relatively lower levels of impact in the categories of aesthetics, biological resources, cultural and paleontological resources, geology and soils, hydrology and water quality, land use and planning, noise, public services, traffic, wastewater disposal, and solid waste disposal, although all of these impacts would be less than significant or fully mitigable under the planned WSP solar development. The Reduced Project Size Alternative would result in greater levels of impact than the planned WSP solar development in the categories of agricultural resources, hazardous materials, greenhouse gas emissions, and water supply, and similar levels of impact to WSP solar development in terms of air quality, and hazards and hazardous materials. On balance, while the Reduced Project Size Alternative would result in somewhat lower impacts in several categories, it would result in substantially greater impacts in others such as agricultural resources, greenhouse gas emissions, and water supply. In addition, since the planned WSP solar development results in no significant and unavoidable impacts, the Reduced Project Size Alternative would not eliminate or substantially reduce such impacts. Therefore, the Reduced Project Size Alternative would not represent an environmentally superior alternative to the planned WSP solar development. Moreover, the Reduced Project Size Alternative would be significantly less effective in fulfilling the project objectives, as restated at the beginning of this chapter, particularly the objectives of helping to meet the state's renewable energy and greenhouse gas reduction targets, retiring all of the physically-impaired lands of the WSP plan area from irrigated agriculture, and maximizing reallocation of scarce imported water resources to more productive agricultural operations.

5.2.4. ALTERNATIVE PROJECT LOCATION

The selection of a suitable location for the alternative site analysis involved the application of site selection criteria which would identify a site that approximates the salient characteristics of the WSP plan area. These criteria included the following: a minimum size requirement of 21,000 contiguous acres; location on or near an existing transmission line; site comprises physically-impaired farmland; low value for protected species and habitats; low impact to residential and non-residential structures; no lands with pending or approved development applications; and direct access to a State highway or improved County road.

The only potential alternative site in the region which satisfies all of these criteria was identified at a location 30 miles northwest of the WSP plan area in Fresno County. This site consists of approximately 21,000 contiguous acres of WWD-owned retired farmland situated south of the City of Mendota along both sides of SR-33, between California Avenue on the north and Manning Avenue on the south (see Figure ALT-1). The Alternative Project Site (hereinafter also referred to as the "Mendota Site") is located just north of a 230-kV transmission line which runs in an east-west direction through the area.



Base map: Google Earth, 2016

Westlands Solar Park - Alternative Site

Figure ALT-1

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All of the lands within the Mendota Site are designated as "drainage-impaired" by the U.S. Bureau of Reclamation and the Westlands Water District, and none of the lands within the Mendota Site are classified as Prime Farmland by the Department of Conservation (USBR 2006, Fig. ES-2; DOC 2008). The Mendota Site consists entirely of farmland that is no longer irrigated and is currently used for pasture, or for cultivation of winter wheat, or is fallow. There are several ranch complexes within and near the Mendota Site including the following: 1) within the site – 3 small ranch complexes with a total of 4 dwellings; adjacent to the site – 5 ranch complexes with a total of 24 dwellings; and within ¼ mile of the site – 1 additional ranch complex with 9 dwellings.

The impacts associated with solar PV development of the Mendota Site are discussed below and compared to the impacts of planned WSP solar development in Kings County.

Aesthetics: Both the Mendota site and proposed WSP site are flat, featureless, and absent of scenic resources. The mountains and foothills of the Coast Ranges are visible on the horizon in distant views to the west from both sites (see Section *3.1. Aesthetics*). There are no rock outcroppings or historic buildings or important trees on either site or adjacent lands. There are no designated State scenic highways in the vicinity of either site and no highways in the area been determined to be eligible for such designation at the County or State level. There relatively few residences in proximity to either site (i.e., the Mendota site has 4 dwellings within the site and 24 dwellings adjacent; the WSP site has 22 dwellings adjacent and none within the site). Both sites are traversed by lightly traveled highways (i.e., the Mendota Site is traversed by State Route 33, and the WSP site is traversed by Avenal Cutoff Road.

Given the low visual quality of both sites, and the low number of visual receptors, the visual sensitivity of both sites is low. Given low profile of solar PV development, the overall visual impacts associated with the solar development of either site would be less than significant. For both the Mendota site and the proposed WSP site, any nearby residences with direct views into the site would have landscaped buffer areas within the adjacent portions of the project site that would provide visual screening from solar arrays that may be located nearby. The Mendota site includes 3 ranch complexes with a total of 4 dwellings that would be surrounded by solar development, albeit screened and buffered by existing landscaping or intervening ranch operations buildings in all cases. At the WSP site, the nearest ranch complexes would be screened existing landscaping and separated from the nearest solar facilities by improved County roads that would provide additional separation. Thus while the general visual impacts associated with the solar development of the Mendota and WSP sites would be similar and less than significant, the WSP site provides greater separation between solar facilities and adjacent residences. Therefore, the level of aesthetic impact associated with the Mendota Site would be greater than the aesthetic impact from the WSP site.

Agricultural Resources: The soils of the Mendota site consist entirely of soils of the Tranquillity-Ciervo, saline-sodic-Calflax association. As with the soils of the WSP site, these soils have a land capability rating of Class 3 or lower when irrigated, and are rated Class 7 without irrigation (NRCS 2006). Similar to the WSP site, all of the lands within the Mendota site have been designated as "drainage-impaired" by the U.S. Bureau of Reclamation and Westlands Water District, which is a reflection of their high groundwater levels and high salinity, which place severe constraints on agricultural productivity (USBR 2006, Fig. ES-2). The reuse of the degraded farmlands of the Mendota site for solar generating facilities would not result in significant impacts to agricultural resources, as is the case for the planned WSP site (see Section *3.2. Agricultural Resources*). As such, the level of impacts to agricultural resources resulting from the solar

development of the Mendota site would be similar to the level of agricultural impacts associated with solar development of the WSP plan area.

Air Quality: The solar development of either the Mendota or WSP site would result in air emissions associated with construction and operation. During their construction phases, the generating facilities would result in short-term emissions of particulate matter and equipment exhaust, as well as vehicle exhaust from delivery trucks and worker commute trips. Given that the Mendota site and the WSP site are located at similar distances from regional population centers where construction workers would mainly reside and commute from, and given that the sites are also similarly distant from northern and southern California ports and manufacturing centers where solar generating components would be transported from, there would be no substantial difference between the sites in terms of overall vehicle miles traveled and resulting emissions levels during construction.

During the construction phases for either project site, grading and construction activities would generate potential particulate emissions from windborne dust. It is expected that the resulting levels of particulate matter and ozone precursors (from equipment exhaust) would exceed air quality standards, although it is anticipated that the construction dust and exhaust emissions would be reduced sufficiently to meet applicable significance thresholds through dust suppression measures and other mitigation measures specified by the San Joaquin Valley Air Pollution Control District.

During project operations, emissions would result in long-term emissions from project delivery and commute traffic, and from on-site maintenance activities. However, the level of activity during project operations would be too low to result significant air quality impacts at either the planned WSP site or the Mendota site.

In summary, the air emissions from solar development of the Mendota site would be similar to those associated with the planned WSP site, given that they would cover the same land area and generate similar traffic volumes. The air quality impacts associated with the solar development would be mitigated to less-than-significant levels at either site. Therefore, the level of air quality impacts resulting from solar development of the Mendota site would be very similar to air quality impacts associated with the planned WSP site.

Biological Resources: The Mendota site largely consists of row crops (winter wheat) and fallow fields which provide foraging habitat for small mammals and raptors. As with the planned WSP site, there are no wetlands, riparian habitats, or significant trees on the Mendota site. There are known occurrences of a number of protected plant and animal species within and near the Mendota site. Special-status plant species that have been recorded within the Mendota site include Munz's tidy tips and San Joaquin woollythreads. Special-status animal species that have been recorded within 3 miles of the Mendota site include: San Joaquin kit fox, Nelson's antelope squirrel, Swainson's hawk, burrowing owl, mountain plover, blunt-nosed leopard lizard, giant garter snake, western mastiff bat, and other species (Caltrans 2015; Fresno County 2015). The fields of the Mendota site would provide foraging habitat for the Swainson's hawk and other raptors. The numerous San Joaquin kit fox sightings to the west and the along the San Joaquin River to the northeast indicate that kit fox utilize the Mendota site as a migration route.

A distinguishing feature of the Mendota site is its proximity to several regional wildlife areas and ecological preserves. These include the Mendota Wildlife Management Area, Alkali Sink Ecological Preserve, and Kerman Ecological Preserve, which are located off-site to the east, and the Panoche Hills Ecological Preserve and the Little Panoche Reservoir Wildlife Area, which are located across I-5 to the west. The

Panoche Hills provide habitat for a number of protected species such as blunt-nosed leopard lizard, San Joaquin kit fox, several species of kangaroo rat and other small mammals, as well as protected birds, insects, and plants. The Mendota Wildlife Management Area and nearby preserves also provide habitat for several protected species (Caltrans 2015). Accordingly, the *Recovery Plan for the Upland Species of the San Joaquin Valley* designates the lands of the Mendota site as part of a larger "area where connectivity and linkages should be promoted" (USFWS 1998, Fig. 72). The planned WSP site is not identified in the Recovery Plan as having regional biological importance as either habitat or migration corridor. Thus, while both the Mendota site and the WSP site have relatively low biological value as wildlife habitat themselves, the Mendota site has a greater number of protected species sightings in the immediately surrounding area, and it has been identified as part of an important wildlife movement corridor. Therefore, the overall biological sensitivity of the Mendota site is greater than that of the WSP site, and potential for impacts to protected species is greater at the Mendota site than at that WSP site. Therefore, the level of biological impacts that would result from solar development of the Mendota site would be greater than the impacts associated with solar development at the WSP site.

Cultural and Paleontological Resources: There are no known historic, archaeological, or paleontological resources present on Mendota or WSP sites, although it is possible that previously undiscovered buried resources could be encountered during site grading and development at either site. Although no fossils have been identified at either the Mendota or WSP site, both sites are underlain by Pleistocene era deposits which could include paleontological resources; however, in both cases any fossiliferous material is likely occur below the shallow depths of excavation associated with solar PV development. Potential impacts to any buried cultural or paleontological materials that may be encountered during grading and excavation would be fully mitigated through standard contingent mitigations at either site. Since the cultural resources impacts would be less than significant or would be similarly mitigated at either alternative site, the level of impact to cultural and paleontological resources from solar development of the Mendota site would be similar to the impacts associated with development of the WSP site.

Geology and Soils: The Mendota site and the WSP site are subject to very similar soil conditions and levels of seismic hazard. Both sites are located well outside an Alquist-Priolo Earthquake Fault Zone, so the possibility of ground surface rupture at either site is remote. Both sites would be subject to ground shaking from an earthquake centered on the Great Valley Fault Zone or the San Andreas Fault Zone, both of which are located in the Coast Ranges to the west The potential for these and other seismic hazards, such as liquefaction or seismically-induced settlement, to significantly affect solar development within either the Mendota or WSP site would be subject to detailed geotechnical investigations The site soils would also be evaluated for potential impacts to structures and foundations, such as expansion potential and subsidence. These studies would evaluate the geologic and soils hazards and would identify appropriate mitigation measures to minimize risks associated with any such hazards on either site. Given the similarity of soil and seismic conditions, and given that the potential impacts would be mitigated to less-than-significant levels at either location, the level of geologic impacts resulting from solar development of the Mendota site would be similar to the impacts associated with development of the WSP site.

Hazards and Hazardous Materials: At both the Mendota and WSP site, the past and current agricultural operations involved the storage and use of fuels, pesticides, herbicides, and fertilizers, and included exploratory and production drilling for petroleum. While there is a potential for residual contamination from these activities at both sites, the potential for associated hazard would be fully investigated and remediated, as appropriate, in accordance with federal, state, and local regulations.

The construction and operation of solar facilities at either site would involve the use of various fuels and materials which are classified as hazardous materials. For example, transformers would contain mineral oil which would require secondary containment. For both sites, hazardous materials management plans and response plans would be prepared and implemented in case of accidental spill or unauthorized release of hazardous materials.

In summary, any potential hazardous materials impacts associated with past activities or ongoing operation of solar facilities would be mitigated to less-than-significant levels at either the Mendota or the WSP site. Thus, the level of hazardous materials impacts that would potentially result from solar development of the Mendota site would be similar to the impacts associated with development of the WSP site.

Hydrology and Water Quality: There are no FEMA-designated floodplains or floodways on or immediately adjacent to either the Mendota site or the WSP site (Fresno County 2000a, Fig. 9-7). As such, there would be little or no potential for solar facilities to be subject to flooding impacts or to impede flood flows at either the Mendota or WSP site. In general, solar PV development would be very similar at either the Mendota or WSP site and would result in very small increases in the volume and rate of stormwater flow. The existing site terrain would undergo very little modification, and the solar development would add a very small percentage of impervious surfaces to the site. Although the sites would be largely covered by solar arrays mounted on steel posts, rainfall would drain off the tilted panels to the permeable ground below. New impervious surfaces would be confined to foundations and pavements added by transformer/inverter enclosures, operations and maintenance facilities, substations, and maintenance driveways. The total increase in impervious surface coverage would be minimal and would result in little or no change to off-site runoff or contribution to downstream flood flows. Site grading at either site would be designed for positive drainage and avoidance of hydrologic impacts.

The potential for surface water quality impacts would be similar for the Mendota and WSP sites. Both sites are relatively level and have similar soil and rainfall characteristics. During grading and construction for solar facilities, stormwater runoff would have the potential to erode exposed soils and result in sedimentation of water bodies. Due to the relatively level terrain and absence of natural drainage courses on both the Mendota and WSP sites, the potential for surface water pollution could be readily mitigated at either site through standard erosion and sediment controls during the construction phases, and through best management practices during the operational phases of solar development.

Since the drainage, flooding, and water quality impacts would be less than significant or would be similarly mitigated at both sites, the level of hydrology and water quality impacts resulting from solar development of the Mendota site would be similar to the impacts associated with development of the WSP site.

Greenhouse Gas Emissions. Solar generating facilities involve the combustion of fossil fuels through operation of construction equipment and vehicles, generation of employee and delivery traffic, and on-site operations and maintenance activities. Fossil fuel combustion results in emissions of greenhouse gases such as carbon dioxide. Given that the solar facilities at either site would be very similar in nature and scale, and considering the locational and site characteristics are very similar for both sites, it is expected that the vehicle miles traveled and construction fuel consumption would be very similar for both sites, resulting very similar levels of greenhouse gas emissions. Moreover, the greenhouse gas emissions from solar projects are more than offset by the avoided emissions from a fossil-fueled power plant with the same generating capacity. As such, a solar facility at either site would result in a positive

effect upon global climate change. The level of greenhouse gas emissions and beneficial climate change impacts resulting from solar development of the Mendota site would be similar to the level of beneficial climate change impacts associated with development of the WSP site.

Land Use and Planning: As noted above, the Mendota Site includes 3 inhabited ranch complexes with a total of 4 dwellings within the site, plus 5 ranch complexes with a total of 24 dwellings adjacent to the site. By comparison, there are no ranches or rural dwellings within the WSP site, and 2 ranch complexes with 22 dwellings adjacent to the WSP site. Any permanent visual impacts to the residential receptors at both sites would be minimized by existing mature trees and landscaping at the residential properties. During construction, the inholding residents at the Mendota site would be subject to equipment noise and dust when grading and construction activity occurs on the immediately surrounding lands. By comparison, most residences located in proximity to the WSP site would be located several hundred feet away and well off-site from the nearest grading and construction activity. Thus the level of land use adjacency impacts resulting from solar development of the Mendota site would be greater than the land use impacts associated with the WSP site.

Noise: In general, solar generating facilities result in increased noise levels associated with construction, while operational noise is negligible. During the construction phase, noise would be generated by: grading and excavation; construction vehicle traffic; and construction of the solar arrays and support facilities.

The lands surrounding both the Mendota and WSP sites are very sparsely populated and there are very few noise-sensitive receptors in the vicinity of either site. However, the Mendota site includes 4 dwellings within the site, while the WSP site has no dwellings on-site. The WSP site also has fewer dwellings on immediately adjacent lands. Given that the WSP site would affect fewer residential complexes, and that no residences would be subject to potential noise sources from all directions, the solar development of the WSP site would result in relatively lower levels of noise impact than at the Mendota site. Thus, while the construction noise impacts associated with solar development at either site would be temporary at any given location, and would likely be less than significant for all receptors, the noise impacts associated with the Mendota site would be greater than the noise impacts associated with the WSP site.

Public Services: The primary public services required for the solar generating facilities include fire protection and police services. Fire protection services for the Mendota site would be provided by the Fresno County Fire Department, and the WSP site would be served by the Kings County Fire Department, with service provided from nearby stations in each respective county. There is a low risk of structure fire or wildfire associated with the solar generating facilities, and neither site is located in a high fire hazard area. Although the solar facilities would result in a slight increase in demand for fire services, they would not result in the need for new or expanded fire department facilities, so the impact at either site would be less than significant. The level of impact to fire services resulting from solar development of the Mendota site would be similar to the fire services impacts associated with solar development of the WSP site.

Police services for the Mendota site would be provided by the Fresno County Sheriff's Department, and the WSP site would be served by the Kings County Sheriff's Department, while and the California Highway Patrol would serve both sites. The solar generating facilities at either site would include real-time video monitoring of facilities, with response from off-site security staff as needed. Although the solar facilities would result in a slight increase in demand for police services, they would not result in the

need for new or expanded Sheriff's Department facilities so the impact at either site would be less than significant. The level of impact to police services resulting from solar development of the Mendota site would be similar to the police services impacts associated with solar development of the WSP site.

Transportation/Traffic: Solar facilities generate the most traffic during their construction phases, and very low traffic volumes during operations. Construction activity results in traffic generation from construction workers commuting from the surrounding communities, materials trucks hauling project components off-site locations, and dump trucks and concrete trucks hauling aggregate and ready-mix concrete from regional sources. The Mendota site would be developed with similar solar PV generating facilities as planned for the WSP site, with similar pacing of construction, the volume of peak traffic generated would be the same for both sites. During construction, traffic management plans would be required for either site to manage large loads and slow moving vehicles. Both the Mendota and WSP sites have direct access to I-5 via State highways and improved County roads, and these access routes would be adequate to accommodate traffic volumes during construction and operation of solar facilities. Although construction of the solar facilities would result in temporary increases in traffic volumes on the roadway system, the traffic impacts associated with solar development at either site would be less than significant. The level of traffic impacts resulting from solar development of the Mendota site would be similar to the traffic impacts associated with solar development of the WSP site.

Utilities and Service Systems: The solar facilities at either the Mendota site or the WSP site would require water supply, wastewater disposal, and solid waste disposal, as discussed below.

Water Supply

Water supply for the solar facilities would be required during both the construction and operational phases. During grading and construction, water would be needed for dust control and cleaning of equipment and vehicles. For both the Mendota site and the WSP site, it is expected that existing on-site agricultural wells would provide non-potable water during construction, and that potable water for consumption by construction workers would be provided by bottled water brought to the site. Given that the project size, operational characteristics, and site conditions would be very similar for either site, the construction water demands during construction would be very similar for both the Mendota site and the WSP site.

Operational water demands would include water for periodic panel washing and general maintenance requirements. For both the Mendota and WSP sites, it is expected that operational water supply would consist of imported surface water provided through Westlands Water District. This allocation is considered adequate for panel washing and general maintenance of PV solar operations. Therefore, no groundwater would be pumped to support PV solar operations at either site.

In summary, the water supply impacts related to the construction and operation of solar facilities at both sites would be less than significant. The level of water supply impact resulting from solar development at the Mendota site would be similar to the impacts associated with the WSP site.

Wastewater

During both the construction and operational phases, domestic wastewater generated by solar facilities at either site would be accommodated through the use of portable toilet facilities, with regular cleanout and disposal by a contractor. The wastewater disposal impacts would be less than significant for both

sites. The level of wastewater impact associated with solar development of the Mendota site would be similar to the impact associated with the WSP site.

Solid Waste

Solid waste would be generated during construction and operation of the solar generating facilities. There are no constraints to solid waste collection, and there is sufficient landfill capacity to accommodate non-recyclable waste from a solar facility at either the Mendota or WSP site. The solid waste disposal impacts would be less than significant for both sites. The level of solid waste impact resulting from solar development of the Mendota site would be similar to the impact associated with the WSP site.

In summary, the impacts associated with the solar development of the Mendota alternative site would be similar to those associated with the planned WSP site in most categories including: agricultural resources, air quality, cultural resources and paleontology, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and drainage, public services, traffic, and utilities and service systems. However, impacts at the Mendota site would be greater than the WSP site for the following impact categories: aesthetics, biological resources, land use and planning, and noise. There are no impact categories for which the Mendota site would result in a lower level of impact than the planned WSP site, and there are no categories for which the Mendota site would substantially lessen or avoid a significant impact associated with the proposed WSP project site. More importantly, the Mendota alternative site would not reduce or eliminate a significant and unavoidable impact, since there are no significant unmitigable impacts associated with the development of a solar generating facility at the proposed WSP project site.

5.2.5. COMPARISON OF WSP ALTERNATIVES AND IDENTIFICATION OF THE ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The foregoing analysis of comparative impacts between the proposed project and the project alternatives is summarized in Table ALT-1 on the next page.

While the No Project Alternative would result in somewhat lower impacts in several categories, it would result in substantially greater impacts in others such as agricultural resources, greenhouse gas emissions/climate change, and water supply. Therefore, the No Project Alternative would not represent an environmentally superior alternative to the planned WSP solar development. Moreover, the No Project Alternative would not achieve any of the basic objectives of the WSP project (see Section *I. C. Project Objectives*), as restated at the beginning of this chapter. For example, the No Project Alternative would not meet the objective of the retiring the physically-impaired farmland of the WSP site; nor would it end deliveries of imported irrigation water to the WSP site, and allow that water be transferred to more productive farmland nearby. The No Project Alternative would not help reduce reliance on the aquifer, nor would it help end the cumulative degradation of soil and groundwater resources through cyclic salt loading from irrigation. The No Project Alternative would not meet the objective of helping to achieve the RPS goals for renewal energy, nor would it help reduce greenhouse gas emissions pursuant to AB 32.

TABLE ALT-1

SUMMARY COMPARISON OF WSP SOLAR DEVELOPMENT WITH PROJECT ALTERNATIVES

Impact Category	Level of Impacts			
	Westlands Solar Park	Impacts of Alternatives, Compared to WSP		
		No Project Alternative	Reduced Project Size Alternative	Alternative Project Site
Aesthetics	Less than Significant	Lower	Lower	Greater
Air Quality	Less than Significant	Similar	Similar	Similar
Agricultural Resources	Less than Significant	Greater	Greater	Similar
Biological Resources	Less than Significant	Lower	Lower	Greater
Cultural & Paleontological Resources	Less than Significant	Lower	Lower	Similar
Geology & Soils	Less than Significant	Lower	Lower	Similar
Greenhouse Gas Emissions	Less than Significant	Greater	Greater	Similar
Hazards & Hazardous Materials	Less than Significant	Similar	Similar	Similar
Hydrology & Water Quality	Less than Significant	Lower	Lower	Similar
Land Use & Planning	Less than Significant	Lower	Lower	Greater
Noise	Less than Significant	Lower	Lower	Greater
Public Services	Less than Significant	Lower	Lower	Similar
Traffic/Transportation	Less than Significant	Lower	Lower	Similar
Utilities & Service Systems	Less than Significant	Greater	Greater	Similar
Environmentally Superior Alternative?	Yes	No	No	No

The CEQA Guidelines, at Section 15126.6(e)(2), provide that the EIR shall also identify an environmentally superior alternative from among the other alternatives. The Reduced Project Size Alternative would result in somewhat lower levels of impact under most categories relative to the planned WSP solar development. However, all of the potential impacts associated with WSP solar development would be reduced to less-than-significant levels through mitigation measures to be incorporated into the proposed WSP project. Although the Reduced Project Size Alternative would not avoid or eliminate any significant project impacts which would not already be reduced to less-than-significant levels in the proposed WSP project, this alternative would be the environmentally superior alternative because it would result in generally lower levels of impact in most categories compared to the planned WSP solar development.

The Reduced Project Size Alternative would partially meet the basic objectives of the project, but not fully. The Reduced Project Size Alternative would fall short of meeting project objective of retiring all of the physically-impaired lands in the WSP site, and thus would also not fully meet the objective of redirecting the imported water allocations from the WSP site to non-impaired farmland where it can enhance the long-term viability of those agricultural operations.

The Reduced Project Size Alternative would fall short of meeting the basic project objective of providing for maximum development of the solar resources in the Westlands CREZ, and thus would not fully implement the objective of helping to achieve the State's RPS targets, and of providing for large reductions in greenhouse gas emissions. The Reduced Project Size Alternative would also fall short of meeting the objective of reducing reliance on groundwater resources, and of ending the cumulative degradation of the soil and groundwater resources through cyclic salt loading by agricultural irrigation. In summary, the Reduced Project Size Alternative would not be as effective as the proposed project in meeting the basic objectives of the project.

In conclusion, there are no environmentally superior alternatives to the WSP project which would go as far as the proposed WSP project in meeting the project objectives.

5.2.6. WSP ALTERNATIVES CONSIDERED BUT NOT INCLUDED IN DETAILED ANALYSIS

During the course of selecting a reasonable range of project alternatives, the CEQA Guidelines require the following:

> "The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination." (CEQA Guidelines, Section 15126.6(c).)

The alternatives considered in the course of this analysis are identified below, along with brief explanations as to why they were not carried forward for detailed analysis.

Alternative Solar Technologies

Other technologies that utilize solar radiation include concentrated solar power (CSP) technologies such as solar power tower and parabolic trough. These represent different forms of thermal solar generation, which rely on controlled heating of water or other liquids by reflected and focused sunlight

to drive steam turbines. While these processes all involve cooling cycles, this can be largely accomplished by fans (dry cooling) although some volume of water is still required in the cooling process. In addition, the energy requirements of the fans reduces the overall generating output of the power plant. Thermal solar technologies were not considered as viable options for WSP for several reasons. First, thermal solar facilities require a minimum solar resource value of 6.0 kWh/M^2/day, and optimally 7.0 kWh/M^2/day or greater available in the Mojave Desert (NREL 2015). Kings County has a solar resource value of 5.5-6.0 kWh/M^2/day, which is sufficient for PV solar but less than the minimum requirement for thermal solar (CEC 2005). Due to relative lack of water for cooling requirements, thermal solar facilities would need to be dry cooled which would reduce generating efficiency by 10 percent. (Water requirements for CSP would be approximately 0.0936 afy/ac [includes 0.0624 afy/ac for dry cooling, and 0.0312 for mirror washing], or 15 acre-feet per 160 acres, which would exceed WWD's water allowance for solar facilities of 5 acre-feet per 160 acres per year)(NREL 2015). Overall land requirements per MWhr for thermal solar are similar to PV solar (NREL 2013). Combined with the relatively large capital costs involved in bringing solar thermal facilities online, the lower generating efficiencies would necessitate pricing levels that would not be competitive with solar PV at the WSP site, particularly since PV installation costs have dropped much more than thermal power installation costs over the past 5 years. In addition, thermal solar projects such as solar power tower involve greater levels of impacts in terms of visual impacts (400- to 500-foot towers and tall mirror arrays), intense glare (from top of towers), as well as bird mortality due to solar flux (intense heating of the air near the power tower). The operational Ivanpah thermal solar facility in the Mojave Desert includes 3 towers for 394 MW of generation on 4,000 acres, indicating that solar power tower facilities at the WSP site would require 15 towers. Thus, the impacts associated with CSP technologies would be substantially greater than those associated with solar PV, and these alternative technologies would not reduce any impacts associated the planned WSP solar facilities. Therefore, this alternative was not evaluated further.

Alternative Forms of Renewable Energy

In addition to solar generation, other qualifying forms of electrical generation under the State's Renewable Portfolio Standard (RPS) include wind generation, small hydroelectric plants, and cogeneration. These forms of electrical generation are also permitted in the Kings County General Plan for agriculturally-designated areas. The WSP plan area does not include adequate wind resources to support wind generation. Hydroelectric power generation is not viable given the lack of sufficient water and absence of steep topographic gradients required for hydro. Cogeneration consists of capturing waste heat produced during thermal power generation; however, there are no residential, commercial, or industrial facilities in the WSP vicinity that could utilize the waste heat as a substitute for their on-site fossil fueled or electrically powered heating systems. Therefore, alternative forms of renewable energy production would not be feasible within the WSP plan area, and thus were not evaluated further.

Distributed Generation

Distributed generation (DG) consists of numerous small-scale generation systems that do not require connection to the state transmission grid but are connected to the local power distribution system at or near locations where the energy is used. The California Energy Commission (CEC) defines renewable DG projects as 20 MW or smaller. Types of renewable generation include solar, wind, biomass, geothermal, and small hydropower. Renewable DG is divided into two major categories: self-generation DG and wholesale DG.

Self-generation or "behind-the-meter" DG is typified by rooftop solar on residential, commercial, industrial, and government buildings, or on carports or shade structures for playgrounds and parks. These facilities consist of small generators of 1 MW or less and are subject to various incentives administered through the California Solar Initiative under the Self-Generation Incentive Program. Much of the power generated is consumed at the individual DG sites, although some generators produce surplus power that would be conveyed offsite for local and regional distribution. The implementation of "net metering" by utility companies allows excess rooftop solar to be exported from the DG site to the distribution system during non-peak usage hours when it is not needed at the small DG site, and then allows the DG site to recapture the power from the distribution system during peak usage hours when rooftop solar panels at the DG site are not producing sufficient energy to meet on-site needs.

Wholesale DG includes commercial generators producing between 1 and 20 MW. There are numerous operating and pending projects for wholesale PV solar projects in the State, most of which consist of solar PV projects, but also include a few wind projects.

Distributed generation would not meet the project objectives because it would not provide for the generation of 2,000 MW of utility-scale renewable power near existing transmission, or the beneficial reuse and retirement of 21,000 acres of degraded farmland, or the reduction of overall water requirements in an area with overburdened water resources. Moreover, distributed generation by nature involves installation of small renewable generation facilities on numerous dispersed small sites. The applicant does not own numerous sites that would be required to generate 2,000 MW of power, and it would be economically and logistically infeasible for the project proponent to undertake assembly and development of the many sites required.

Moreover, this alternative would not meet the basic objectives of the project. In particular, this alternative would not meet the project objectives of providing for the generation of 2,000 MW of utility-scale renewable power near existing transmission, or the beneficial reuse and retirement of 21,000 acres of degraded farmland, or the reduction of overall water requirements in an area with overburdened water resources. Therefore, the distributed generation alternative was not evaluated further.

Demand Management/Conservation

This alternative would involve increased energy conservation and demand-side management within the utilities' service areas instead of developing 2,000 MW of new generation within WSP. Energy conservation is ongoing through implementation of increasingly stringent energy-efficient building requirements of the California Building Code and appliance standards, as well as financial incentive programs. Public utilities are also required to achieve aggressive energy efficiency goals established by the CPUC. Given the mandates and incentives for energy conservation under baseline conditions, it is unlikely that sufficient additional energy conservation is achievable as a substitute for the 2,000 MW of new generation planned for WSP, and it would be economically and logistically infeasible for the project proponent to undertake a private state-wide program to attempt it.

Moreover, this alternative would not meet the basic objectives of the project. In particular, this alternative would not meet the project objectives of providing for the generation of 2,000 MW of utility-scale renewable power near existing transmission, or the beneficial reuse and retirement of 21,000 acres of degraded farmland, or the reduction of overall water requirements in an area with

overburdened water resources. Therefore the demand management/conservation alternative was not evaluated further.

5.3. ALTERNATIVES TO WSP GEN-TIE CORRIDORS

The purpose of the alternatives analysis under CEQA is to: "…focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project…" (CEQA Guidelines, Section 15126.6(b)). As discussed throughout Chapter 3 of this EIR, all of the potential impacts associated with the WSP Gen-Tie Corridors can be avoided or mitigated to less-than-significant levels through mitigation measures identified in this EIR. As such, there are no impacts resulting from the planned gen-tie projects that would be significant and unavoidable. In the absence of significant and unavoidable impacts, CEQA does not require the evaluation of alternatives that would avoid or substantially lessen such significant impacts. Nevertheless, the following two alternatives are briefly discussed below for the gen-tie corridors: the No Project Alternative, and Gen-Tie Route Alternatives.

No Project Alternative

The No Project Alternative assumes that the planned WSP gen-tie projects would not be constructed. This alternative consists largely of continuing the current farming and grazing operations within the corridor areas. The potential impacts associated with the No Project Alternative would be lower than those associated with the planned WSP gen-tie projects in all impact categories except greenhouse gas emissions/climate change. However, since the planned gen-tie projects result in no significant and unavoidable impacts, the No Project Alternative would not eliminate or substantially reduce such impacts. On balance, the No Project Alternative would represent an environmentally superior alternative to the planned WSP gen-tie projects. However, the No Project Alternative would not fulfill any of the project objectives, as restated at the beginning of this chapter, particularly the main objective of providing delivery of renewal solar power to the electrical grid. Without a means of delivering the solar power generated at the Westlands Solar Park, the development of the WSP plan area with solar PV facilities would not be technically feasible and thus would not occur. Thus, the No Project Alternative would also result in failure to meet the main WSP project objectives of helping to meet the state's renewable energy and greenhouse gas reduction targets, retiring all of the physically-impaired lands of the WSP site from irrigated agriculture, and maximizing reallocation of scarce imported water resources to more productive agricultural operations.

Gen-Tie Route Alternatives

As described in Section *2.0. Project Description*, the proposed project includes two planned WSP Gen-Tie Corridors to serve the Westlands Solar Park. These include the WSP-South to Gates Gen-Tie Corridor, which would consist of a single row of 230-kV monopoles, and the WSP-North to Gates Gen-Tie Corridor, which could also consist of a single row of 230-kV monopoles. In both cases, optional configurations would consist of two parallel 230-kV gen-ties lines within each corridor. If one of the corridors is ultimately planned and designed to include two parallel gen-tie lines, then it is unlikely that the other gen-tie line would be constructed. Since any of these configuration options may be followed at the project level, an equal level of analysis is presented for all these options within the main body of this EIR. This is primarily accomplished through consideration of a 350-foot wide gen-corridor, capable of accommodating two parallel gen-tie lines, for each gen-tie corridor. As such, the full analysis of

feasible alternatives to the gen-tie corridors is embodied in the main topical analyses in this EIR. No other feasible gen-tie routes connecting the Westlands Solar Park with the Gates Substation have been identified. Based on the information presented here, no further evaluation of alternative gen-tie routes is required.

Summary – Environmentally Superior Alternative

The potential impacts associated with the No Project Alternative would be lower than those associated with the planned WSP Gen-Tie Corridors in all impact categories except greenhouse gas emissions/global climate change. However, since the planned gen-tie projects result in no significant and unavoidable impacts, the No Project Alternative would not eliminate or substantially reduce such impacts. On balance, the No Project Alternative would represent an environmentally superior alternative to the planned WSP Gen-Tie Corridors. However, the No Project Alternative would not achieve any of the main project objectives, as discussed above.

The CEQA Guidelines, at Section 15126.6(e)(2), provide that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. As discussed above, there are no feasible alternative routes to the planned WSP Gen-Tie Corridors, beyond the configuration options addressed in the body of this EIR. Therefore, apart from the No Project Alternative, which would not achieve the project objectives, there is no environmentally superior alternative to the planned WSP Gen-Tie Corridors.

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